ICONES PLEUROTHALLIDINARUM
XXVI

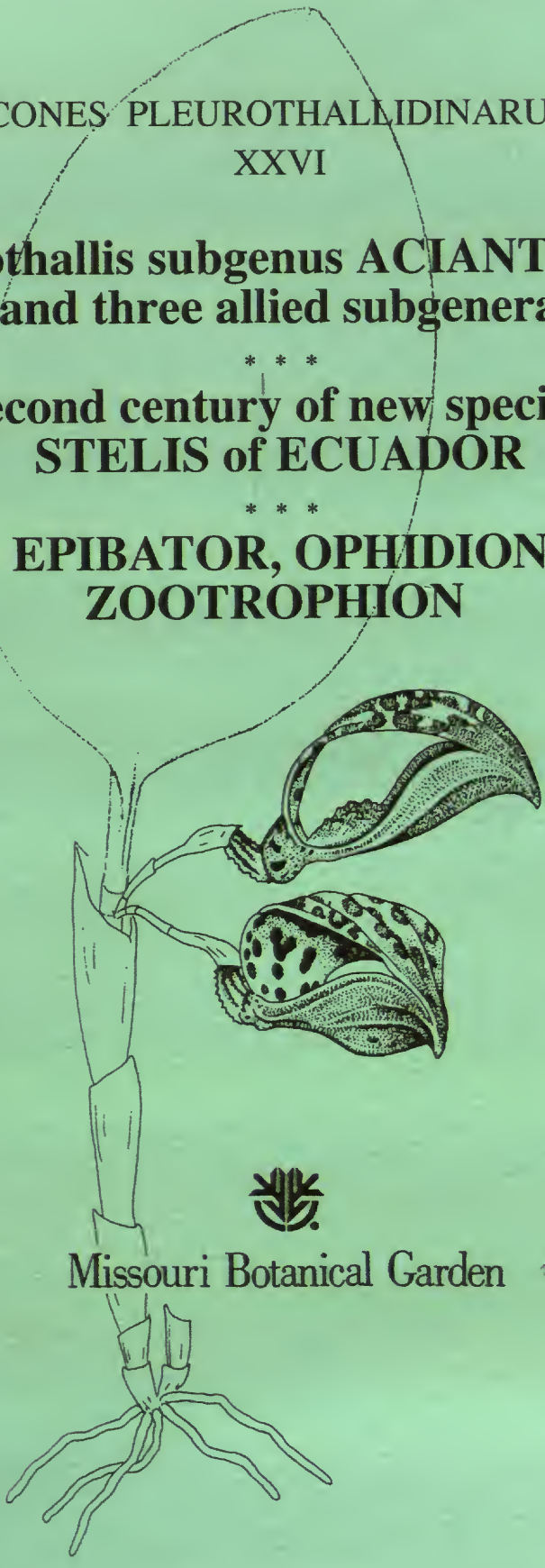
Pleurothallis subgenus ACIANTHERA and three allied subgenera

* * *

A second century of new species of STELIS of ECUADOR

* * *

EPIBATOR, OPHIDION ZOOTROPHION



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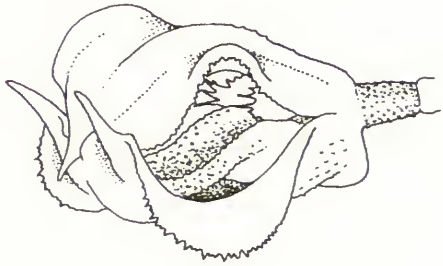
ADDENDA TO *BRACHIONIDIUM, DRACULA, LEPANTHES, PLATYSTELE, PLEUROTHALLIS, PORROGLOSSUM*, AND *MASDEVALLIA*
NEW GENERA AND COMBINATIONS

Carlyle A. Luer



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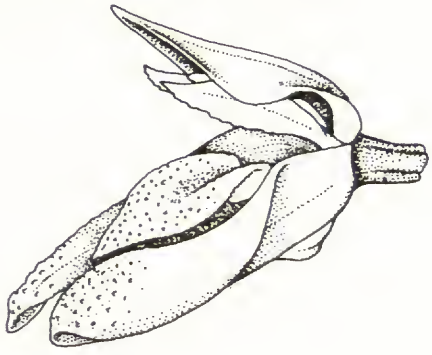


Pleurothallis pantasmoides C.Schwinf., mountain forest north of Loja, province of Loja, Ecuador, altitude 2700 meters above sea level, photographed by Alexander Hirtz, 2 February 1987.

SYSTEMATICS OF *PLEUROTHALLIS* SUBGENUS *ACIANTHERA* (ORCHIDACEAE)

ABSTRACT

Subgenus *Acianthera* (Scheidw.) Luer of *Pleurothallis* R.Br. with two sections are described. Keys to the sections and species exclusive of Brazil are given. Each species is described and illustrated with a black and white drawing.

New taxa:

Pleurothallis martinezii Luer, sp. nov.
Pleurothallis quadricristata Luer & Hirtz, sp. nov.
Pleurothallis venulosa Luer & R.Vásquez, sp. nov.
Pleurothallis zumbae Luer & Hirtz, sp. nov.

This subgenus was proposed (Luer, 1986) to accommodate a large number of allied species, which are characterized by more or less fleshy flowers with connate lateral sepals that are borne singly or in a raceme terminally from the apex of the ramicaul. The leaf is sessile, but sometimes the margins are decurrent on the ramicaul. Although an infinite number of variations and combinations of morphological details occur, a species of this subgenus is usually readily recognized by the few criteria noted above. However, morphological features are intricately shared with species of other subgenera, i.e. *Apoda-Prorepentia*, as well as other genera. Numerous species presently assigned to subgenus *Specklinia* and allied subenera are very closely allied. Studies of DNA confirm the known distinction of subgenus *Acianthera*, albeit with some blurred boundaries, but they do not dictate the taxonomic level at which the taxon must be recognized. Taxonomy is a man-made system for classification. Because of close relationships, the existence of intermediates, and obvious morphological similarities to other infrageneric taxa of *Pleurothallis*, *Acianthera* is logically treated as a subgenus, a convenient category useful with circumstances as these, instead of removal from the genus as recently proposed (Pridgeon & M.W.Chase, 2001).

The first species of the subgenus to be described was *Pleurothallis prolifera* in a manuscript by Herbert in 1829, and published by Lindley in his publication of 1830. No other species had yet appeared in the literature, but before the decade was out, Lindley had described 14 more, which included well-known species such as *P. circumplexa, P. pectinata* and *P. pubescens*. Also during this decade, Loddiges described *P. lanceana* from Suriname in 1831, Poeppig and Endlicher described *P. decurrens* in 1836 from Peru, and the following year from Guyana, Knowles and Westcott described *P. ciliata*, a synonym of *P. lanceana*.

In 1841, Lindley described *P. recurva*, a frequent and variable species from southern Brazil. The following year, Scheidweiler described both *Acianthera* and *Centranthera* as new genera, each with essentially identical descriptions with the same epithet *punctata*. It seems that after submitting *Centranthera*, Scheidweiler discovered that the name was occupied, and a substitute manuscript was submitted with a different generic name with the same meaning. No doubt due to confusion, or difficulties in communication, the two manuscripts were published side by side. No type-specimens were deposited, but the descriptions apply to Lindley's *P. recurva*. *Acianthera* was retained for the subgenus.

About 95 species are presently accepted in the subgenus *sensu stricto* exclusive of Brazil. The species with distributions limited to southern South America will be treated in a future *Icones Pleurothallidinarum*. As many species as possible are illustrated, but several are poorly known, unavailable, or lost. Some variations of variable species are included. The style of the illustrations made during the last 27 years varies. Stig Dalström has inked those made in the last 10 years.

SUBGENUS *ACIANTHERA*

Pleurothallis subgen. **Acianthera** (Scheidw.) Luer, Monogr. Syst. Bot. 20: 12, 1986.

Bas.: *Acianthera* Scheidw., Allg. Gartenzeitung 10: 292, 1842.
Type: *Acianthera punctata* Scheidw. presumably = *Pleurothallis recurva* Lindl.
Ety: From the Greek *acianthera*, "a pointed anther," a known pleurothallid feature, but a feature not seen in the species answering the description of the plant.

Syn.: *Centranthera* Scheidw., Allg. Gartenzeitung 10: 293, 1842, not R.Br. 1910.
Type: *Centranthera punctata* Scheidw. presumably = *Pleurothallis recurva* Lindl.
Ety: From the Greek *centranthera*, "a pointed anther," as above.

Syn.: *Pleurothallis* subgen. *Acianthera* sect. *Brachystachyae* Lindl.
Syn.: *Pleurothallis* subgen. *Acianthera* sect. *Sicariae* Lindl.
Syn.: *Pleurothallis* subsect. *Pectinatae* Luer.
Syn.: *Pleurothallis* sect. *Sarcodanthae* Barb.Rodr.
Syn.: *Pleurothallis* sect. *Brevicaulae* Barb.Rodr.
Syn.: *Pleurothallis* subsect. *Tomentosae* Luer.
Syn.: *Pleurothallis* subsect. *Tricarinatae* Luer.

Plants perennial, small to large, epiphytic or terrestrial, caespitose or repent; roots fleshy or slender. Ramicauls erect, suberect, ascending, or pendent, abbreviated or elongate, non-pseudobulbous, unifoliate, terete to compressed and winged, with various sheaths. **Leaf** erect, suberect, pendent, or prostrate, spreading or conduplicate, coriaceous, narrowly or broadly elliptical to ovate, obovate, or orbicular, the apex acute, subacute, obtuse, or rounded, shallowly notched at the apex, often with a mucro in the sinus, the base sessile, variously cuneate to rounded, subcordate or cordate. **Inflorescence** racemose or single-flowered, the flowers usually resupinate, variously colored, borne by a peduncle that emerges from the ramicaul at the apex with a conspicuous or inconspicuous, usually reclining spathe, or rarely laterally; floral bracts infundibular or tubular; pedicels stout, usually shorter than the floral bract; ovary smooth or pubescent, grooved, trivalvate; **sepals** more or less fleshy, commonly pubescent or verrucose, acute, subacute, or obtuse, the dorsal sepal usually connate only basally to the lateral sepals, the lateral sepals variously connate into a concave synsepal; **petals** small, broadly to narrowly oblong, obovate or ovate, acute, obtuse, to acuminate, and denticulate (except for a very few exceptions); **lip** thickly fleshy, oblong-trilobed, the disc bicallous, the lobes near or below the middle and more or less erect, the base truncate, often bi-auriculate, attached to the tip of the column-foot; **column** semiterete, variously winged, the anther and the stigma ventral, pollinia 2, obovoid, with a minute viscidium, the base of the column thickened with the apex of the ovary.

The subgenus is characterized by a slender or stout, long or short, terete or compressed ramicaul, and a sessile leaf. The habit is repent or caespitose. The inflorescence, long or short, is usually simultaneously flowered, or single-flowered, and emerges terminally at the apex of the ramicaul. This habit is similar to that of many species of *Stelis* and *Pleurothallis*, e.g. subgenera *Ancipitia, Antilla, Brenesia, Crocodeilanthe, Dracontia, Elongatia, Kraenzlinella, Scopula*, and *Pleurothallis* subsections *Acroniae, Antenniferae, Macrophyllae-Fasciculatae* and *Macrophyllae-Racemosae*. Each of these is distinctly distinguished by floral morphology.

The sepals of subgen. *Acianthera* are more or less fleshy, and commonly pubescent or verrucose. The dorsal sepal is usually connate only at the base to the lateral sepals, which are connate into a synsepal. The petals are small and denticulate to some degree. The lip is thick, oblong, bicallous, with lateral lobes or angles below the middle, and a truncate base that is often minutely lobulate at each corner. The column is terete, often winged with the anther and stigma ventral. Similar denticulate petals and biauriculate lips are found in sections of subgenus *Specklinia*.

While constructing a key to the subgenus, it became apparent that criteria used to segregate infrasubgeneric taxa were too disseminated and inconsistent with variations grading from one extreme to the other. Therefore, no infrasubgeneric taxon is recognized. The key is purely artificial. Because of floral aberrations inconsistent with the subgenus, subgenera *Aberrantia, Didactylus* and *Unguella* are proposed for species previously treated in the subgenus.

KEY TO THE SPECIES

1 Ramicaul triquetrous; leaf with margins more or less decurrent on the ramicaul...2
1' Ramicaul terete, but sometimes compressed above; leaf with margins not decurrent on the ramicaul 35

2 Ramicaul winged, or with decurrent margins of leaf....3
2' Ramicaul channeled, without wings....17

3 Leaf with margins decurrent less than 1 cm on margins of the ramicaul....4
3' Leaf with margins decurrent more than 1 cm, so that the inflorescence appears to arise above the base of the leaf....9

4 Lip with lateral lobes antrorse, acute....5
4' Lip with lateral lobes obtuse....7

5 Lip with apical lobe variously denticulate, not coarsely verrucose....*P. sicaria*
5' Lip with apical lobe denticulate, verrucose....6

6 Lip cleft centrally; petals acute....*P. melanoglossa*
6' Lip not cleft centrally; petals long-apiculate....*P. sicariopsis*

7 Leaf distinctly shorter than the ramicaul; column with large, rounded, apical lobes ....*P. pantasmi*
7' Leaf not shorter than the ramicaul; column not with large, apical lobes....8

8 Petals spathulate; lip with low, broad lateral lobes....*P. aechme*
8' Petals elliptical-oblong; lip with erect, round lateral lobes....*P. sicula*

9 Lip with lateral lobes sharply acute....*P. rodrigoi*
9' Lip with lateral lobes obtuse....10

10 Sepals apiculate, interdigitating; petals long-fimbriate....*P. prognantha*
10' Sepals not apiculate; petals not long-fimbriate....11

11 Lip with lateral lobes above the middle....*P. madisonii*
11' Lip with lateral lobes below the middle....12

12 Lip with a pair of tall, well-demarcated carinae....*P. lamia*
12' Lip without well-demarcated carinae....13

13 Petals long-apiculate; lip with a cleft callus at the base....*P. decurrens*
13' Petals not long-apiculate; lip without a cleft callus....14

14 Lip with tall, erect lateral lobes between middle and lower thirds....*P. wyvern*
14' Lip with lateral lobes low, rounded....15

15 Sepals acute; lip with lateral lobes near the base....*P. phyllostachys*
15' Sepals round at the apex, pubescent; lip with lateral lobes below the middle....16

16 Sepals minutely papillose within; petals shortly lacerate....*P. pantasmoides*
16' Sepals not papillose within; petals minutely denticulate....*P. circumplexa*

17 Ramicaul stout, channeled, narrowly winged, more or less compressed above..18
17' Ramicaul sharply compressed....26

18 Sepals verrucose within 19
18' Sepals not verrucose within 20

19 Sepals and petals acute ..... *P. ellipsophylla*
19' Sepals and petals obtuse ..... *P. chrysantha*

20 Leaf narrowly acuminate at base ..... *P. consatae*
20' Leaf cuneate at base 21

21 Lip with apical margins inflexed ..... *P. tokachii*
21' Lip with apical margins round 22

22 Lip with erect, denticulate lobes between middle and basal thirds ..... *P. cerberus*
22' Lip with obtuse margins below the middle 23

23 Lip with narrow, channeled, central callus ..... *P. scalpricaulis*
23' Lip with pair of thick calli on middle third 24

24 Lip with erect, obtuse lobes below middle ..... *P. obscura*
24' Lip with low, rounded margins below middle 25

25 Leaf thick with rounded margins; lateral sepals apiculate ..... *P. aphthosa*
25' Leaf with demarcated margins; lateral sepals not apiculate ..... *P. rubroviridis*

26 Leaf narrowly rounded to cuneate at base 27
26' Leaf cordate at base 31

27 Ramicaul less than 2.5 cm long; sepals less than 4 mm long ..... *P. morilloi*
27' Ramicaul more than 3 cm long; sepals more than 6 mm long 28

28 Lateral sepals not verrucose ..... *P. geminicaulina*
28' Lateral sepals verrucose 29

29 Petals spathulate, obtuse ..... *P. moronae*
29' Petals not spathulate 30

30 Synsepal suborbicular; lip with lateral lobes rounded ..... *P. cogniauxiana*
30' Synsepal ovate; lip with lateral lobes acute ..... *P. esmeraldae*

31 Lip with serrated carinae ..... *P. prolifera*
31' Lip without serrated carinae 32

32 Leaf suborbicular, less than 3 cm long ..... *P. agathophylla*
32' Leaf ovate, 3.5-12 cm long 33

33 Lip with round, lateral lobe below the middle ..... *P. cogniauxiana*
33' Lip with low, round margins below the middle 34

34 Lip bicarinate on middle third ..... *P. casapensis*
34' Lip not bicarinate, faintly tricallous above the middle ..... *P. crassilabia*

35 Sheaths of the ramicaul pubescent 36
35' Sheaths of the ramicaul glabrous 39

36 Sheaths spotted, microscopically pubescent; ovary densely pubescent..... ..... *P. breviflora*
36' Sheaths unspotted, grossly pubescent; ovary not pubescent.....37

37 Dorsal sepal deeply connate to the laterals; petals long-apiculate..... ..... *P. aurantio-lateritia*
37' Dorsal sepal not connate to the laterals; petals not long-apiculate.....38

38 Plant more than 10 cm tall; basal sheath pubescent; leaf with the margin entire... ..... *P. hirsutula*
38' Plant less than 10 cm tall; all sheaths densely pubescent; leaf minutely denticulate ..... *P. bissei*

39 Inflorescence longer than the leaf.....40
39' Inflorescence shorter than the leaf.....46

40 Sepals tall-carinate.....41
40' Sepals not tall-carinate 42

41 Plant more than 10 cm tall; inflorescence more than 10 cm long.....*P. tricarinata*
41' Plant less than 8 cm tall; inflorescence less than 10 cm long.....*P. boliviana*

42 Leaf papillose ..... *P. papulifolia*
42' Leaf not papillose.....43

43 Raceme pendent; sepals more than 3 cm long.....*P. heliconioides*
43' Raceme erect; sepals less than 2 cm long.....44

44 Spathe large, foliaceous, erect .....*P. miguelii*
44' Spathe not foliaceous and erect.....45

45 Dorsal sepal linear, not minutely papillose; petals fimbriate.....*P. lanceana*
45' Dorsal sepal ovate, minutely papillose; petals not fimbriate.....*P. compressicaulis*

46 Habit small, mostly less than 15 cm tall, distinctly repent.....47
46' Habit small to large with short or ascending rhizomes, or caespitose.....67

47 Inflorescence single-flowered.....48
47' Inflorescence racemose, 2- to many-flowered.....60

48 Leaf thick, more or less conduplicate 49
48' Leaf expanded 50

49 Leaf narrowly elliptical, acute.....*P. angustifolia*
49' Leaf broadly cordate, obtuse.....*P. phoenicoptera*

50 Leaf round, broadly obtuse or round at the apex.....51
50' Leaf elliptical to ovate, acute to obtuse at the apex.....53

51 Dorsal sepal narrowly linear, not verrucose.....*P. erythrogramma*
51' Dorsal sepal obovate, verrucose at apex 52

52 Lip pyriform, broadly rounded at apex.....*P. discophylla*
52' Lip elliptical-ovate, obtuse ..... *P. sandaliorum*

53 Dorsal sepal spathulate, longer than the synsepal....54
53' Dorsal sepal oblong, not longer than the synsepal....56

54 Dorsal sepal much longer than the synsepal; synsepal convex above the middle.... *P. garciae*
54' Dorsal sepal somewhat longer than the synsepal; synsepal concave....55

55 Lip with erect, uncinate lobes below the middle.... *P. yauaperyensis*
55' Lip with low margins below the middle.... *P. cordatifolia*

56 Leaf elliptical or ovate, acute; dorsal sepal acute....57
56' Leaf elliptical, acute or obtuse; dorsal sepal obtuse....58

57 Leaf ovate; ramicaul less than 2 cm long.... *P. litensis*
57' Leaf elliptical; ramicaul 7-9 cm long.... *P. chamelopoda*

58 Dorsal sepal not verrucose; lip with erect lobes below the middle.... *P. saundersiana*
58' Dorsal sepal verrucose; lip with low, round margins below the middle....59

59 Leaf less than 1.2 cm wide.... *P. angustifolia*
59' Leaf 2.5-3 cm wide.... *P. aculeata*

60 Ramicaul shorter than the leaf; raceme 2-flowered.... *P. juxtaposita*
60' Ramicaul longer than the leaf; raceme 2- or more flowered....61

61 Leaf ovate, round at the base; flowers snow white.... *P. chionopa*
61' Leaf not round at the base; flowers not snow white....62

62 Leaf narrowly linear-terete.... *P. costabilis*
62' Leaf not narrowly linear-terete....63

63 Leaf narrowly ovate; dorsal sepal much longer than the synsepal.... *P. miqueliana*
63' Leaf elliptical; dorsal sepal not significantly longer than the synsepal....64

64 Lip with acute, antrorse lobes below the middle.... *P. carinata*
64' Lip with obtuse lobes below the middle....65

65 Lip with erect, denticulate lobes below the middle.... *P. saundersiana*
65' Lip with low, rounded lobes below the middle....66

66 Lip with anterior lobe smooth.... *P. harpophylla*
66' Lip with anterior lobe verrucose.... *P. granitica*

67 Rhizome 3-5 mm thick, ca. 1 cm long between ramicauls....68
67' Rhizome less than 3 mm thick, less than 1 cm long between ramicauls....70

68 Ramicaul with 4-5 more or less equal, tubular sheaths.... *P. wageneriana*
68' Ramicaul with 1 tubular sheath plus basal sheaths....69

69 Sepals obtuse, verrucose within.... *P. decipiens*
69' Sepals acute, smooth within.... *P. deserta*

70 Raceme 2-flowered....71
70' Raceme with more than two flowers....73

71 Petals elliptical-ovate; lip unguiculate..... *P. erebatensis*
71' Petals dilated on middle thirds; lip not unguiculate.....72

72 Lip obovate, smooth at the apex..... *P. zumbae*
72' Lip oblong, coarsely fringed ..... *P. biceps*

73 Petals verrucose on upper margin..... *P. heteropetala*
73' Petals not verrucose on upper margin 74

74 Leaf acuminate; petals with 2 carinate veins..... *P. viridis*
74' Leaf not acuminate; petals without 2 carinate veins.....75

75 Petals with a pair of denticulate lamellae.....76
75' Petals without a pair of denticulate lamellae.....79

76 Leaf ovate, cordate at the base..... *P. quadricristata*
76' Leaf elliptical, cuneate or rounded at the base.....77

77 Petals obtuse, lip without angled margin..... *P. toachica*
77' Petals acute, lip with an obtusely angled margin.....78

78 Lip with anterior lobe entire..... *P. quadriserrata*
78' Lip with anterior lobe minutely denticulate..... *P. martinezii*

79 Sepals connate to near middle; petals narrowly linear; lip acute..... *P. eximia*
79' Sepals, petals and lip not as above 80

80 Peduncle elongate with short, congested raceme.....81
80' Peduncle shorter than the raceme.....82

81 Lip obtuse with round, retrorse lateral lobes..... *P. omissa*
81' Lip acute with broadly rounded margins..... *P. fockei*

82 Sepals thickly fleshy, broadly obtuse; petals unguiculate, acute at apex.....
..... *P. fumioi*
82' Sepals not thickly fleshy; petals not acute and unguiculate.....83

83 Dorsal sepal narrowly linear, attenuate; lip spiculate..... *P. angustisepala*
83' Dorsal sepal not linear; lip not spiculate.....84

84 Synsepal broad, deeply inflated; petals narrowly linear..... *P. violacea*
84' Synsepal not deeply inflated; petals not linear.....85

85 Petals unguiculate, flabellate 86
85' Petals not unguiculate, flabellate.....87

86 Ovary pubescent; lip with erect, obtuse lobes below the middle..... *P. pubescens*
86' Ovary glabrous; lip with low, rounded lobes below the middle..... *P. tikalensis*

87 Lip unguiculate with claw channeled..... *P. punicea*
87' Lip not unguiculate 88

88 Lip with acute, retrorse, lateral lobes..... *P. verecunda*
88' Lip without acute, lateral lobes 89

89 Lip glabrous, with an obtuse marginal angle between middle and basal thirds..... ..... *P. hondurensis*
89' Lip verrucose, variously margined below the middle.....90

90 Lip with an obtuse, denticulate angle between middle and basal thirds.....91
90' Lip without an obtuse, denticulate, marginal angle.....92

91 Leaf narrowly cuneate at the base ..... *P. ofella*
92' Leaf rounded at the base ..... *P. odontotepala*

92 Lip with large, round, lateral margins below the middle..... *P. cremasta*
92' Lip without large, round, lateral margins 93

93 Lip with small round lobe between middle and basal thirds..... *P. henrici*
93' Lip with broadly rounded margins below the middle.....94

94 Lip widest in middle third, narrow in basal third..... *P. erebatensis*
94' Lip widest below the middle 95

95 Petals 3-veined..... *P. kegelii*
95' Petals 1-veined.....96

96 Leaf round at the base ..... *P. mexiae*
96' Leaf cuneate at the base 97

97 Sepals subcarinate along veins ..... *P. venulosa*
97' Sepals smooth, not subcarinate..... *P. lojae*

BINOMIALS PUBLISHED IN *PLEUROTHALLIS* ATTRIBUTABLE TO SUBGENUS *ACIANTHERA*

(excluding those of Brazil)

P. aculeata Luer & Hirtz .....Fig. 1.
P. acutangula H.Wendl. & Kraenzl. = **P. tricarinata**
P. aechme Luer.....Fig. 2.
P. agathophylla Rchb.f. .....Fig. 3.
P. alpina Ames = **P. sicaria**
P. amoena A.Rich. & Galeotti = **P. violacea**
P. angustifolia Lindl. .....Fig. 4.
P. angustisepala Ames & Correll.....Fig. 5.
P. aphthosa Lindl. .....Fig. 6.
P. aurantio-lateritia Speg. .....Fig. 7.
P. aurea A.Rich. & Galeotti = **P. chrysantha**
P. barthelemyi Luer = **P. erebatensis**

P. biceps Luer & Hirtz.....Fig. 8.
P. bilamellata Rchb.f. = **P. obscura**
P. bissei Luer .....Fig. 9.
P. boliviana Rchb.f. .....Fig. 10.
P. bourgeaui Kraenzl. = **P. pubescens**
P. brachypetala Griseb. = **P. odontotepala**
P. breviflora Lindl. .....Fig. 11.
P. brunnescens Schltr. = **P. lojae**
P. bufonis Klotzsch = **P. pubescens**
P. carinata C.Schweinf. .....Fig. 12.
P. carioi Schltr. = **P. angustifolia**
P. casapensis Lindl. .....Fig. 13, 14.
P. cerberus Luer & R.Vásquez .....Fig. 15.
P. chamelopoda Luer .....Fig. 16.
P. chamensis Lindl. = **P. casapensis**
P. chamensis var. *tenuis* C.Schweinf. = **P. mexiae**
P. chionopa Luer .....Fig. 17.
P. chrysantha Lindl. .....Fig. 18, 19.
P. ciliata Knowles & Westc. = **P. lanceana**
P. ciliata var. *abbreviata* C.Schweinf. = **P. aphthosa**
P. ciliata var. *elongata* C.Schweinf. = **P. lanceana**
P. cingens Ames & C.Schweinf. = **P. circumplexa**
P. circumplexa Lindl. .....Fig. 20.
P. citrophila Luer = **P. lojae**
P. cochlearis Rchb.f. = **P. violacea**
P. coffeicola Schltr. = **P. casapensis**
P. cogniauxiana Schltr. .....Fig. 21, 22.
P. compressicaulis Dod.....Fig. 23.
P. confusa Fawc. & Rendle = **P. angustifolia**
P. congruens Luer = **P. cogniauxiana**
P. consatae Luer & R.Vásquez.....Fig. 24.
P. consimilis Ames = **P. yauaperyensis**
P. cordatifolia Dod.....Fig. 25.
P. coriacea Bello = **P. pubescens**
P. costabilis Luer & R.Vásquez.....Fig. 26.
P. crassifolia Focke, not Rchb.f. = **P. lanceana**
P. crassilabia Ames & C.Schweinf. .....Fig. 27.
P. cremasta Luer & J.J.Portilla .....Fig. 28.
P. cubensis Lindl. = **P. rubroviridis**
P. cyclophylla Luer = **P. agathophylla**
P. daguensis Lehm. & Kraenzl. = **P. lanceana**
P. dasychila Luer = **P. wageneriana**
P. decipiens Ames & C.Schweinf. .....Fig. 29.
P. decurrens Poepp. & Endl. .....Fig. 30.
P. deserta Luer & R.Vásquez.....Fig. 31, 32.
P. discophylla Luer & Carnevali.....Fig. 33.
P. dubia A.Rich. & Galeotti = **P. angustifolia**
P. ellipsophylla L.O.Williams.....Fig. 34.
P. erebatensis Carnevali & G.A.Romero.....Fig. 35, 36, 37, 38.
P. erythrogramma Luer & Carnevali.....Fig. 39.
P. esmeraldae Luer & Hirtz .....Fig. 40.
P. eximia L.O.Williams.....Fig. 41.
P. fimbriata Lindl. = **P. miqueliana**

P. florosa Luer = **P. lojae**
P. fockei Lindl. ..... Fig. 42.
P. foetens Lindl. = **P. aphthosa**
P. fumioi Hashimoto ..... Fig. 43.
P. gacayana Schltr. (pacayana) = **P. circumplexa**
P. garciae Luer ..... Fig. 44.
P. geminicaulina Ames ..... Fig. 45.
P. granitica G.A.Romero & Luer ..... Fig. 46.
P. harpophylla Rchb.f. ..... Fig. 47.
P. harpophylla var. *atropurpurea* = **P. harpophylla**
P. hartwegiaefolia H.Wendl. & Kraenzl. = **P. chrysantha**
P. heliconioides Luer & R.Vásquez ..... Fig. 48.
P. henrici Schltr. ..... Fig. 49.
P. heteropetala Luer ..... Fig. 50.
P. hirsutula Fawc. & Rendle ..... Fig. 51.
P. hondurensis Ames ..... Fig. 52.
P. huebneri Schltr. = **P. lanceana**
P. juxtaposita Luer ..... Fig. 53.
P. kegelii Rchb. f. ..... Fig. 54.
P. lamia Luer ..... Fig. 55.
P. lanceana Lodd. ..... Fig. 56, 57.
P. litensis Luer & Hirtz ..... Fig. 58.
P. lojae Schltr. ..... Fig. 59, 60, 61.
P. longisepala Barb.Rodr. = **P. miqueliana**
P. madisonii Luer ..... Fig. 62.
P. mandibularis Kraenzl. = **P. pubescens**
P. martinezii Luer ..... Fig. 63.
P. melanoglossa Luer & Escobar ..... Fig. 64.
P. mesophylla A.Rich. & Galeotti = **P. circumplexa**
P. mexiae Luer ..... Fig. 65.
P. miguelii Schltr. ..... Fig. 66.
P. minax Rchb.f. = **P. lanceana**
P. miqueliana (Focke) Lindl. ..... Fig. 67
P. morilloi Carnevali & Ramírez ..... Fig. 68.
P. moronae Luer & Hirtz ..... Fig. 69.
P. nakatae Hashimoto = **P. agathophylla**
P. nanella Luer & Hirtz = **P. erebatensis**
P. obscura A.Rich. & Galeotti ..... Fig. 70.
P. odontotepala Rchb.f. ..... Fig. 71.
P. ofella Luer ..... Fig. 72.
P. omissa Luer ..... Fig. 73.
P. pacayana Schltr. = **P. circumplexa**
P. pantasmi Rchb.f. ..... Fig. 74.
P. pantasmoides C.Schweinf. ..... Fig. 75.
P. papulifolia Luer ..... Fig. 76.
P. phoenicoptera Carnevali & G.A.Romero ..... Fig. 77.
P. phyllostachys Schltr. ..... Fig. 78.
P. phoxophylla Luer = **P. fumioi**
P. platystachys Regel = **P. tricarinata**
P. plumosa Lindl. = **P. lanceana**
P. polystachya A.Rich. & Galeotti = **P. pubescens**

P. porphyrantha Kraenzl. = **P. pubescens**
P. prognatha Luer & Escobar ..... Fig. 79.
P. prolifera Herb. ex Lindl. ..... Fig. 80.
P. pterocaulis L.O.Williams = **P. decipiens**
P. pubescens Lindl. ..... Fig. 81.
P. punicea Luer ..... Fig. 82.
P. purpurascens Luer & Hirtz = **P. erebatensis**
P. quadricristata Luer & Hirtz ..... Fig. 83.
P. quadriserrata Luer ..... Fig. 84.
P. rhynchoglossa Schltr. = **P. violacea**
P. riograndensis Barb.Rodr. = **P. pubescens**
P. rodrigoi Luer ..... Fig. 85.
P. rubroviridis Lindl. ..... Fig. 86.
P. rufa Rolfe = **P. obscura**
P. sandaliorum G.A.Romero & Carnevali ..... Fig. 87.
P. saundersiana Rchb.f. ..... Fig. 88.
P. scalpricaulis Luer ..... Fig. 89.
P. serrifera Lindl. = **P. lanceana**
P. sicaria Lindl. ..... Fig. 90, 91, 92.
P. sicariopsis Luer ..... Fig. 93.
P. sicula Luer & R.Vásquez ..... Fig. 94.
P. simacoana Schltr. = **P. boliviana**
P. smithiana Lindl. =**P. pubescens**
P. sprucei Lindl. = **P. lanceana**
P. tikalensis Correll & C.Schweinf. ..... Fig. 95.
P. toachica Luer & Dodson ..... Fig. 96.
P. tokachii Luer ..... Fig. 97.
P. trialata Rolfe, not Cogn. = **P. tricarinata**
P. triangularis Klotzsch & Karst. = **P. casapensis**
P. tricarinata Poepp. & Endl. ..... Fig. 98.
P. tricarinata Focke, not Poepp. & Endl. = **P. fockei**
P. trigonopoda Klotzsch = **P. sicaria**
P. triptera Schltr. = **P. tricarinata**
P. tripteris Rchb.f. = **P. sicaria**
P. tripterocarpa Schltr. = **P. boliviana**
P. triquetra Klotzsch ex Lindl. = **P. casapensis**
P. truxillensis Rchb.f. =**P. pubescens**
P. venulosa Luer & R.Vásquez ..... Fig. 99.
P. verecunda Schltr. ..... Fig. 100.
P. verruculosa Kraenzl. = **P. rubroviridis**
P. violacea A.Rich. & Galeotti ..... Fig. 101.
P. viridis Luer & Hirtz ..... Fig. 102.
P. vittata Lindl. = **P. pubescens**
P. wageneriana Klotzsch ..... Fig. 103, 104.
P. wilsonii Lindl. = **P. angustifolia**
P. wolfiana Schltr. = **P. casapensis**
P. wyvern Luer & Escobar ..... Fig. 105.
P. yauaperyensis Barb.Rodr. ..... Fig. 106.
P. zumbae Luer & Hirtz ..... Fig. 107.

Pleurothallis aculeata Luer & Hirtz, Lindleyana 11: 141, 1996.

Ety.: From the Latin *aculeatus*, "prickly," referring to the lip.

Plant small to medium in size, epiphytic, shortly repent, the rhizome stout, 0.5-1 cm long between ramicauls; roots slender. Ramicauls slender, ascending to erect, 4-5 cm long, sharply 3-winged, slightly broader toward the leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** spreading, fleshy, coriaceous, elliptical, subacute to obtuse, 4-5 cm long, 2.5-3 cm wide, the base sessile, subcordate. **Inflorescence** a fascicle of single, successive flowers, borne on top of the leaf, subtended by a spathe 5-6 mm long from the apex of the ramicaul; peduncles 3 mm long; floral bracts 2.5 mm long; pedicels 3.5 mm long; ovary 2.5 mm long; **sepals** fleshy, the dorsal sepal yellow with 3 purple stripes, narrowly oblong, obtuse, minutely tuberculate above the middle within, 9 mm long, 2.5 mm wide, 3-veined, connate to the lateral sepals for 1.5 mm, the lateral sepals purple, connate into a broadly elliptical, obtuse, minutely bifid lamina with recurved margins, 8 mm long, 6 mm wide, 6-veined; **petals** yellow, obovate, obtuse, 3 mm long, 1.5 mm wide, 1-veined, with the margins minutely denticulate above the middle; **lip** dark blackish brown, thick, fleshy, oblong-subtrilobed, 5 mm long, 2.25 mm wide, the apex rounded, denticulate, the lateral lobes broadly rounded, erect, below the middle, the disc diffusely short-spiculate, with a thick pair of parallel, minutely spiculate carinae on the middle third anterior to the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** slender, 2.5 mm long, minutely denticulate at the apex, the foot 2 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, epiphytic in forest along the new road to Morona, alt. ca. 900 m, 19 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4132* (Holotype: MO).

This species is known only from the original collection from the Cordillera del Cutucú in southeastern Ecuador. It is characterized by the creeping rhizome producing short, triquetrous ramicauls that bear a spreading, elliptical leaf. A single, colorful flower is borne successively in a short fascicle at the base of the leaf. The erect dorsal sepal is striped in purple, and the synsepal is purple. The petals are obtuse and minutely denticulate. The blackish lip is densely short-spiculate.

Pleurothallis aechme Luer, Selbyana 3: 42, 1976.

Ety.: From the Greek *aechme*, "a spear," in allusion to the leaf and ramicaul.

Syn.: *Acianthera aechme* (Brade) Pridgeon & M.W.Chase, Lindleyana 16: 241, 2001.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls sharply winged, laterally compressed and sulcate from below the middle, erect, 8-16 cm long, with 2-3 thin, tubular sheaths about the base. **Leaf** erect, coriaceous, narrowly ovate, acute, acuminate, 9-15 cm long, 2-4 cm wide, the base sessile, cuneate, decurrent up to 5 mm onto the ramicaul. **Inflorescence** a fascicle of single, successive flowers, borne on top of the leaf, subtended by a spathe 5-6 mm long from the apex of the ramicaul; peduncles 3 mm long; floral bracts 2.5 mm long; pedicels 3.5 mm long; ovary 2.5 mm long; **sepals** fleshy, the dorsal sepal yellow with 3 purple stripes, narrowly oblong, obtuse, minutely tuberclate above the middle within, 9 mm long, 2.5 mm wide, 3-veined, connate to the lateral sepals for 1.5 mm, the lateral sepals purple, connate into a broadly elliptical, obtuse, minutely bifid lamina with recurved margins, 8 mm long, 6 mm wide, 6-veined; **petals** yellow, obovate-spatulate, obtuse, 3 mm long, 1.5 mm wide, 1-veined, with the margins minutely denticulate above the middle; **lip** dark brown, thick, fleshy, oblong-subtrilobed, 5 mm long, 2.25 mm wide, the apex rounded, denticulate, the lateral lobes broadly rounded, erect, below the middle, the disc diffusely short-spiculate, with a thick pair of parallel, minutely spiculate carinae on the middle third anterior to the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** slender, 2.5 mm long, minutely denticulate at the apex, the foot 2 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Pastaza**: below Río Negro, along Río Pastaza, alt. 1500 m, 18 Mar. 1976, *C. Luer, J. Luer & P. Taylor 955* (Holotype: SEL): epiphytic along Río Pastaza near Mera, alt. ca. 1000 m, 19 Nov. 1955, *E. Asplund 18510* (S); same area, alt. 1160 m, 11 Nov. 1958, *G. Harling 3220* (GB).

This species occurs at moderately low altitudes of eastcentral Ecuador. It is characterized by an ovate-acuminate leaf decurrent only a short distance on a sharply winged ramicaul. The short raceme of brown flowers lies upon the leaf. The dorsal sepal is obovate and free; the petals are spathulate and denticulate; and the lip bears a pair of thick carinae on the middle third.

Pleurothallis agathophylla Rchb.f., Xenia Orch. 3: 25, 1900.

Ety.: From the Greek *agathophyllon*, "good leaf," without a clue for some quality of the leaf.

Syn.: *Humboldtia agathophylla* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis cyclophylla* Luer, Selbyana 3: 92, 1976.
Ety.: From the Greek *cyclophyllon*, "circular leaf," referring to the leaves.

Syn.: *Pleurothallis nakatae* Hashimoto, Bull. Nat. Sci. Tsukuba 4: 3, 1986.
Ety.: Named for Masashi Nakata, who collected this species.

Syn.: *Acianthera agathophylla* (Rchb.f.) Pridgeon & M.W.Chase, Lindleyana 16: 241, 2001.

Plant small or medium in size, epiphytic, long-repent, the rhizome 1-3 cm long between ramicauls; roots slender. Ramicauls ascending, suberect, stout, slightly compressed and sulcate above, 2-7 cm long, with 2-3 tubular sheaths about the base. **Leaf** spreading, coriaceous, more or less convex, suborbicular to broadly elliptical, broadly obtuse to rounded and notched at the apex, 2-3.5 cm long, 1.8-2.5 cm wide, the base broadly rounded, cordate, sessile. **Inflorescence** a subcongested, distichous, simultaneously 2- to 4-flowered raceme, 1.5-2 cm long including the peduncle 0.5-1 cm long, borne on top of the leaf, from a spathe 4-5 mm long; floral bracts 1.5-2 mm long; pedicels 2-2.5 mm long; ovary 1.5 mm long; **sepals** yellow to orange, fleshy, the dorsal sepal narrowly oblong, obtuse, thickened above the middle, 5-6 mm long, 1.5 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into an elliptical, obtuse, minutely biapiculate lamina, concave toward the base, 5 mm long, 3 mm wide, 6-veined; **petals** translucent yellow, obovate, acute, 2.5 mm long, 1 mm wide, 1-veined, with the margins serrate above the middle; **lip** yellow-orange, thick, fleshy, oblong-subtrilobed, 2.75 mm long, 1.25 mm wide, the apex rounded, minutely denticulate, the lateral lobes broadly rounded, erect, below the middle, the disc with a low pair of parallel, verrucose carinae on the middle third anterior to the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** winged above the middle, minutely denticulate at the apex, 2 mm long, the foot 0.75 mm long, the anther, rostellum and stigma ventral.

BOLIVIA: **La Paz**: Larecaja, vicinity of Sorata, Cerro del Iminapi, alt. 2600 m, Mar. 1860 *G. Mandon 1132* (Holotype: W; Isotypes: AMES, BM, BR, G, K); Muñecas, near Consata, alt. 1200 m, Jan. 1981, *C. Luer, J. Luer & R. Vásquez 6317* (SEL). **Santa Cruz**: near Samaipata, alt. 1500 m, collected by Fred Fuchs, flowered in cultivation at J & L Orchids, Easton, CT, 20 Oct. 1976, *C. Luer 249S* (holotype of *P. cyclophylla*: SEL).
PERU: **Huánuco**: south of Tingo Maria, collected Aug. 1980, flowered in cultivation 29 Mar. 1981, *C. Luer 5892* (SEL). **Junín**: Chanchamayo, near La Merced, alt. 1700-1800 m, flowered in cultivation in TBG, 8 May 1985, *M. Nakata 626* (holotype of *P. nakatae*: TNS).

This species in relatively frequent from central Peru through Bolivia into southern Brazil. It is characterized by a long-creeping rhizome producing a ramicaul about every two to three centimeters. The leaves are horizontal, broadly ovate, but more often nearly circular, and often shorter than the ramicaul. A short, few-flowered raceme of small, yellow, fleshy flowers is borne on top of the leaf. The petals are obovate, acute and serrate, and the lip is bicallous and verrucose. The flower is similar to all those collections treated in *P. casapensis*.

Pleurothallis angustifolia Lindl., Bot. Reg. 21: sub. t. 1797, 1835.

Ety.: From the Latin *angustifolius*, "with narrow leaves," referring to the foliage.

Syn.: *Pleurothallis dubia* A.Rich. & Galeotti, Ann. Sci. Nat. ser. 3, 3: 16, 1845.
Ety.: From the Latin *dubius*, "doubtful," alluding to its identification.

Syn.: *Pleurothallis wilsonii* Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 326, 1858.
Ety.: Named for Nathaniel Wilson, Scottish naturalist, who collected this species in Jamaica.

Syn.: *Humboldtia angustifolia* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Humboldtia dubia* (A.Rich. & Galeotti) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Humboldtia wilsonii* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis confusa* Fawc. & Rendle, J. Bot. 47, 129, 1909.
Ety.: From the Latin *confusus*, "confused," in allusion to the status of the species.

Syn.: *Pleurothallis carioi* Schltr., Repert. Spec. Nov. Regni Veg. 15: 205, 1918.
Ety.: Named in honor of Oscar Richard Cario, of Nordhausen, Germany, co-collector of this species.

Syn.: *Pleurothallis wilsonii* var. *quentiniana* Stehle, Fl. Descr. Antill. Fr. 1: 196, 1939,
Ety.: Named for R.P. Quentin, co-collector of the species.
Syn.: *Acianthera wilsonii* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 247, 2001.

Plant small, epiphytic, long-repent; rhizome slender, 0.5-1 cm long between ramicauls; roots slender. Ramicauls slender, erect to pendent, 1-4 cm long, with a tubular sheath below the middle and another sheath at the base. **Leaf** erect, coriaceous, ovate to narrowly elliptical, acute, 2-4 cm long, 0.7-1.2 cm wide, cuneate below into the sessile base. **Inflorescence** a single flower or a loose, 2-flowered raceme, the flowers 2-3 mm distant, borne by a peduncle 2-3 mm long, within a spathe 3-6 mm long at the base of the leaf; floral bract 2-2.5 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** light yellow or light yellow-brown, often striped or dotted in rows with darker brown or purple, the dorsal sepal oblong-obovate, acute, thickened above the middle, 4-5 mm long, 1.25 mm wide, 3-veined, the lateral sepals connate into an ovate, shallowly concave, acute, bifid lamina, 4-5 mm long, 2.5-3 mm wide expanded, 6-veined; **petals** translucent, with a purple midvein, obovate, acute, denticulate above the middle, 2.5 mm long, 1 mm wide, 1-veined; **lip** red-brown, thick, ovoid-trilobed, 2.5 mm long, 1 mm wide, the apex broadly obtuse or rounded, minutely denticulate, the sides erect below the middle with a subacute, retrorse angle, with the margins denticulate, the disc with a pair of verrucose carinae above the middle, the base subunguiculate, truncate, minutely bilobed at the corners, hinged to the tip of the column-foot; **column** stout, 2 mm long, denticulate at the apex, the foot 1 mm long, the anther and stigma ventral.

Representative collections:
MEXICO: **Veracruz**: near Jalapa, Xalapam, *Deppe 52* (Holotype: K; Isotype: W); Jalapa, 28 Oct. 1830, *Schiede & Deppe 55* (W); Zacuapan, Nov. 1906, *C.A. Purpus 2122* (AMES); Zacuapam, alt. 900 m, 13 Feb. 1932, *O. Nagel 2658* (AMES). **Tamaulipas**: near Jaumave, 13 June 1932, *H.W. v.Rozynski 669* (AMES). **Chiapas**: El Real, east of Ocosingo, 25 Aug. 1954, *R.L. Dressler 1781* (AMES).
GUATEMALA: **Suchitepequez**: Chilion near Mazatenango, Aug. 1866, *G. Bernoulli 496* (holotype of *P. carioi*: probably destroyed at B); Chilion near Mazatenango, Aug. 1867, *G. Bernoulli 458* (W). **Alta Verapaz**: collected near Cobán, cultivated by Otto Mittelstaedt, 27 Nov. 1990, *C. Luer 14837* (MO).
BELIZE: El Cayo District, Cohune Ridge, June-Aug. 1936, *C.L. Lundell 6443* (AMES); west of Augustine, Mountain Pine Ridge, 440 m, 1 May 1985, *P.M. Catling & V.R. Brownell B53.23* (DAO, AMES).
HONDURAS: **Cortes**: El Jaral, Lake Yojoa, alt. 2000 ft., 26 Oct. 1922, *J.B. Edwards 298* (AMES); Río Lindo, alt. 2200 ft., 7 Sept. 1933, *J.B. Edwards 537* (AMES). **Comayagua**: vicinity of Siguatepeque, 7 Aug. 1936, *T.G. Yuncker, R.F. Dawson & H.R. Youse 5733* (AMES, K, MO).
CUBA: Oriente: Santa Isabel, 1856-57, *C. Wright 668* (Paratype: K); 1860-64, *C. Wright 660* (BM). Orientale, 1856-57, *C. Wright 660* (holotype of *P. confusa*: K; isotypes: AMES, BM, HAC); El Palenquito, alt. 700 m, Mar. 1889, *H.F.A. Eggers 4860* (K); Canar?, upper Guama River, alt. 1,000 ft., 3 Sept. 1908, *N. Taylor 191* (NY); La Perla, 6 Feb. 1911, *J.A. Schafer 8481* (AMES, NY).
JAMAICA: Bethebara, 1849, *Wilson & Wullschlaegel 1079* (lectotype of *P. wilsonii*: K; isolectotypes: M, W); Lancaster, Apr. 1893, *W. Harris 1801* (JAM?, K); Santa Cruz Mountains, 9 Sept. 1907, *N.L. Britton 1289* (NY); Vicinity of Mandeville, 26 Apr. 1910, *J. Crawford 782* (NY).
HAITI: Ravine northwest of Marmelade, 3 Aug. 1905, *G.V. Nask & N. Taylor 1329* (NY); Massif du Nord, Morne Chêneau, alt. 400 m, 26 June 1925, *E.L. Ekman 4431* (C, NY, S).
DOMINICAN REPUBLIC: **Barahona**: alt. 500 m, *Fuertes 489* (AMES); Maniel de Ocoa, alt. 600 m, Oct. 1910, *H. von Türckheim 3673* (AMES). **La Vega**: Constanza: alt. 1200 m, 9 Nov. 1929, *E.L. Ekman 14066* (AMES, K, S, US). **San Juan**: Hondo Valle, alt. 3,500 ft., 1 Sept. 1946, *R.A. Howard & E.S. Howard 8676* (AMES, NY, BM); forest by Cueva de Cupey, alt. 150 m, 30 June 1887, *Eggers 2706* (BM, BREM, K).
PUERTO RICO: near Cayey around Cidra, 16 Oct. 1885, *P. Sintenis 2064* (BR, C, L, M, MO, NY, W); near Adjuntas, 30 Apr. 1886, *P. Sintenis 4241* (BM, BR, K, US); Ponce: Barrio Anón, Río Inabón, alt. 500-700 m, 31 Jan. 1984, *G.R. Proctor & H. Haenke 40052* (SJ); Cayey: Sierra de Cayey, Cercadillo, alt. 1800-2000 ft., 8 Feb. 1989, *J.D. Ackerman 2481* (UPRRP).
GUADELOUPE: Parnasse, Vieux-Habitants, 25 Oct. 1894, *P. Duss 3536* (NY); Polygone militair, Apr. 1903, *P. Duss 4139* (NY); Bains Jaunes, alt. 750 m, 16 Feb. 1936, *H. Stehlé 351* (holotype of var. *quentiniana*: NY, P); Grand Etang, alt. 300 m, 16 Mar. 1938, *A. Questel 1502* (US); Basse-Terre, Cote sous le vent, Crete de Village, alt. 500 m, 11 Feb. 1976, *C. & F. Sastre & J. Fournet 4254* (GUAD, P).
DOMINICA: St. Peter: Syndicate Road, near Middletown, 2 Apr. 1987, *C. Whitefoord 5676* (BM).
VENEZUELA: **Monagas**: Caripe area, alt. 1,600 ft., 25 Aug. 1974, cultivated at Howell, MI, 1975, *R. McCullogh 1825* (SEL), C. Luer illustr. 024.
COLOMBIA: *P. Silverstone-Sopkin 6292* (MO), C.Luer illustr. 16340.

This species is found commonly on most islands of the Antilles, Mexico and Guatemala in Central, but uncommonly in northern South America. Lindley described both *P. angustifolia* and *P. wilsonii* and distinguished the latter from the former by supposedly entire petals which is not true. In all respects the two concepts are inseparable. A good illustration of *P. dubia* is at W.

The species is characterized by a long, creeping rhizome with short, often pendent ramicauls and narrowly elliptical, acute leaves. The inflorescence is single-flowered, rarely followed by a second. The dorsal sepal is longer than the synsepal, but not as proportionately long as in *P. miqueliana*. The petals are minutely denticulate and the lip has erose-fimbriate angles below the middle.

Pleurothallis angustisepala Ames & Correll, Bot. Mus. Leafl. 10: 74, 1942.

Ety.: From the Latin *angustisepalus*, "with narrow sepal," referring to the dorsal sepal.

Syn.: *Acianthera angustisepala* (Ames & Correll) Pridgeon & M.W.Chase, Lindleyana 16: 242, 2001.

Plant pendent, medium in size, epiphytic, caespitose; roots slender. Ramicauls descending, stout, 2-4 cm long, mostly enclosed by a loose, whitish sheath, with 2-3 shorter sheaths about the base. **Leaf** pendent, coriaceous, suffused with purple along margins, the margins thin and sharp, elliptical-ovate, acute, 7-11 cm long, 1.2-2.4 cm wide, the base broadly cuneate, sessile. **Inflorescence** a congested, distichous, nearly simultaneously 3- to 7-flowered raceme, ca. 3 cm long including the peduncle ca. 1 cm long, borne on top of the leaf, from a spathe 1-2 cm long; floral bracts 3 mm long; pedicels 2 mm long; ovary 1.5 mm long; **sepals** yellow, dotted with purple, the dorsal sepal narrowly elliptical-oblong, acute, attenuate, 15 mm long, 1.75 mm wide, 3-veined, connate 1 mm to the lateral sepals, the lateral sepals connate into an ovate, acute, bifid lamina, with a broad, basal mentum, the sepals adjacent but free for about half the length, 15 mm long, 5 mm wide, together; **petals** translucent yellow-green, with purple dots, obovate, acute, 3.5 mm long, 1 mm wide, 1-veined, with the margins minutely serrate above the middle; **lip** light yellow, spotted with purple, thick, ovate-trilobed, 5 mm long, 1.5 mm wide, the apex narrowly obtuse, spiculate-verrucose, with spiculate-ciliate margins, the lateral lobes erect, on the lower quarter, oblong, narrowly rounded, minutely denticulate, the disc with a pair of parallel, verrucose carinae below the middle anterior to the marginal lobes, thickly callous above an unguiculate base, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** longitudinally winged, denticulate at the apex, 2.75 mm long, the foot curved, 2 mm long, the anther, rostellum and stigma ventral.

GUATEMALA: **Alta Verapaz**: above Tamahú, alt. 900-1200 m, 5 Apr. 1930, *P.C. Standley 70958* (Holotype: F); same area, 28 Nov. 1920, *H. Johnson 1169* (AMES); Senahú, collected Feb. 1981, flowered in cultivation 31 May 1981, *C. Luer 6322* (SEL); near Cobán, cultivated by Otto Mittelstaedt, 27 Nov. 1990 *C. Luer 14836* (MO).
BELIZE: Southern Cayo District, south of Goacamailo Bridge, road to Millionara, alt. 650 m, 10 Dec 1980, *B.R. Adams 271* (K).
MEXICO: **Chiapas**: near Laguna Ocotal Grande, east of Ocosingo, alt. 950 m, 20 July-20 Aug. 1954, *R.L. Dressler 1543* (AMES).

This species is pendent, but mounted as if erect on most herbarium sheets. The ramicauls, considerably shorter than the hanging leaves, are mostly concealed by a loose sheath. The leaves are narrowly ovate with thin, sharp, purple margins. The flowers are produced in a short, congested raceme. The dorsal sepal is very narrow and attenuate; the synsepal, bifid above the middle, forms a broad mentum at the base; the petals are serrate; and the ovate lip is spiculate-verrucose with a pair of small erect lateral lobes on the lower fourth.

Pleurothallis aphthosa Lindl., Edwards's Bot. Reg. 24: Misc. 42, 1838.

Ety.: From the Latin *aphthosa*, "an ulcerous, oral disease," referring to the interior of the flower.

Syn.: *Pleurothallis foetens* Lindl., Edwards's Bot. Reg. 29: Misc. 5, 1843.
Ety.: From the Latin *foetens*, "foul-smelling," in reference to the flowers.

Syn.: *Pleurothallis pelioxantha* Barb.Rodr., Gen. Sp. Orch. Nov. 1: 17, 1877.
Ety.: From the Greek *pelioxanthos*, "livid yellow," referring to the floral parts.

Syn.: *Pleurothallis macrophyta* Barb.Rodr., Gen. Sp. Orch. Nov. 1: 19, 1877.
Ety.: From the Greek *macrophyton*, "a large plant," in reference to the habit.

Syn.: *Humboldtia foetens* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis ciliata* var. *abbreviata* C.Schweinf., Bot. Mus. Leafl., 16: 46, 1953.
Ety.: From the Latin *abbreviatus*, referring to the short racemes.

Syn.: *Acianthera aphthosa* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 242, 2001.

Plant medium in size to large, epiphytic, shortly repent, the rhizome thick, ca. 1 cm between ramicauls; roots slender. Ramicauls ascending, erect, stout, slightly compressed and sulcate above, 8-15 cm long, with a tubular sheath below the middle and 2-3 sheaths about the base. **Leaf** erect, thickly coriaceous, broadly elliptical, narrowly obtuse to subacute, 10-16 cm long, 2.5-4.5 cm wide, cuneate and conduplicate below to a sessile base. **Inflorescence** 1-3 congested, distichous, simultaneously 2- to 5-flowered racemes, ca. 2 cm long including the peduncle less than 1 cm long, borne at the base of the leaf, from a deciduous spathe ca. 1 cm long; floral bracts thin, infundibular, 1-2 mm long; pedicels stout, 2-3 mm long; ovary minutely pubescent, 2-3 mm long; **sepals** minutely pubescent and yellow-green external-

ly, orange and tuberculate-verrucose above the middle within, variously suffused with dull purplish brown, thickly fleshy, the dorsal sepal oblong-obovate, subacute, apiculate, 10 mm long, 4-5 mm wide, 3-veined, free from the lateral sepals, the lateral sepals lightly adherent into a broadly elliptical, concave, bifid synsepal, the sepals easily separated, each oblong-subfalcate, acute, apiculate, 10 mm long, 4-5 mm wide, 3-veined; **petals** translucent yellow, elliptical-oblong, subacute, minutely irregular-subserrate, 3.5 mm long, 1.5 mm wide, 1-veined; **lip** heavily suffused with dark purple-brown, thick, oblong-subtrilobed, 5 mm long, 2.5 mm wide, the apex rounded, minutely verrucose, lateral lobes broadly rounded, below the middle, the disc with a thick pair of parallel, verrucose carinae on the middle third anterior to the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** winged above the middle, toothed at the apex, 3 mm long, the foot thick, 2 mm long, the anther red.

?MEXICO or GUATEMALA: without collection data (Holotype: K).
COLOMBIA: **Cauca**: epiphytic around El Naranjo and Cartago, alt. 1000 m, Aug. 1891, H.B. 124, *F.C. Lehmann s.n.* (K). **Risaralda**: La Virginia, near Hda. San Francisco, alt. 700 m, cultivated 15 Apr. 1976, *R. McCullough 1862* (SEL), C. Luer illustr. 228-S.
ECUADOR: **El Oro**: above the gold mine near Zaruma, alt. 1400 m, 24 Sept. 1980, *C. Luer, J. Luer et al. 5576* (MO, SEL).
PERU: **Huánuco**: Yanano, alt. ca. 6000 ft., 13 May 1923, *J.F. Macbride 3837* (holotype of *ciliata* var. *abbreviata* AMES).
BOLIVIA: **Santa Cruz**: near Samaipata, collected by F. Fuchs, cultivated 18 Jan. 1975, *C. Luer 228-A* (SEL). **Tarija**: west of Puente Strassner, *F. Fuchs s.n.* (SEL).
BRAZIL: Without locality, *Loddiges s.n.* (holotype of *P. foetens*: K; Isotype: W). **Minas Gerais**: Carmo do Rio Claro, *J. Rodrigues s.n.* (holotype of *P. pelioxantha*); Pico de Frade near Caldas, *J. Rodrigues s.n.* (holotype of *P. macrophyta*). **Paraná**: Laranjeiras do Sul, Rio Iguazu, Salto Osório, 23 Nov. 1968, *G. Hatschbach 19823* (C, MO). Sao Paulo: Itararí, cultivated 10 Mar. 1911, *P. Dusén 11585* (HBG).

This species was described by Lindley from cultivated material of uncertain origin. One specimen supposedly from Mexico was received from the Birmingham Botanical Garden via Bateman, the other, supposedly from Guatemala, from the Woburn Garden. Lindley doubted both, confirmed by the fact that this species is still unknown from Central America.

This species is famous for the repulsive-smelling flowers borne in short, congested racemes arising from the folded base of a thick leaf. The sepals are rigidly fleshy and "cobble-stoned" within. The dark purplish brown lip is thick with a pair of verrucose calli in the center.

Pleurothallis aurantio-lateritia Speg., An. Mus. Nac. Buenos Aires 28: 132, 1916.

Ety.: From the Latin *aurantio-lateritius*, "orange brick-red," referring to the color of the sepals.

Syn.: *Physosiphon herzogii* Schltr. Repert. Spec. Nov. Regni Veg. 12: 485, 1913.
Ety.: Named for Theodor Herzog, German collector, who first collected this species.

Syn.: *Acianthera aurantio-lateritia* (Speg.) Pridgeon & M.W.Chase, Lindleyana 16: 242, 2001.

Plant medium in size, epiphytic, shortly repent and caespitose; roots slender. Ramicauls stout, ascending-erect, 2-4.5 cm long, 3 mm thick, enclosed by a loose, fragmenting, pubescent sheath and another 2-3 tubular sheaths toward the base. **Leaf** erect, thickly coriaceous, narrowly elliptical, acute to subacute, 4.5-7 cm long, 1.5-2 cm wide, narrowly cuneate below into a sessile base. **Inflorescence** an erect, congested, secund, several-flowered raceme, 6-10 cm long including the peduncles ca. 2 cm long, with a spathe 5 mm long, from the apex of the ramicaul at the base of the leaf; rachis microscopically pubescent, floral bract close, tubular, microscopically pubescent, 3-4 mm long; pedicels decurrent on the rachis; ovary joined to the rachis, 1-1.5 mm long, minutely pubescent; **sepals** dull yellow-green and shortly pubescent externally, orange and microscopically papillose within, thickly fleshy, the dorsal sepal oblong, rounded at the apex, 11 mm long, 2-2.5 mm wide, connate to the lateral sepals for about half the length to form a sepaline tube, the lateral sepals connate into a concave, oblong lamina, rounded at the apex, 9 mm long, 6 mm wide expanded; **petals** red below the middle, orange above the middle, oblong, obtuse, apiculate, denticulate above the middle, 3 mm long, 1 mm wide; **lip** orange, suffused with red, thick, elliptical-oblong, 3 mm long, 1.5 mm wide, the apex rounded, denticulate-erose, the margins below the middle erect, low, broadly rounded, denticulate, the disc with a pair of irregular carinae on the middle third, the base truncate, minutely biauriculate, hinged to the column-foot; **column** orange, suffused with red, stout, winged above the lower third, dentate at the apex, 2.5 mm long, the foot thick, 1 mm long, the anther and stigma ventral.

ARGENTINA: **Misiones**: San Antonio, on old trunks of *Ilex paraguariensis* St.Hil., Feb. 1907, *C.L. Spegazzini s.n.* (Holotype: ?).
BOLIVIA: **Santa Cruz**: near Tres Cruces, alt. 1500 m, Feb. 1911, *T. Herzog* (holotype of *Physosiphon herzogii* presumably destroyed at B, lectotype here designated: Samaipata, collected by F. Fuchs, flowered in cultivation at SEL, 1976, *C. Luer 325-S* (SEL).

This unique species is known from Argentina and Bolivia, but not recorded from intervening Brazil. The stout ramicauls, slightly shorter than thickly coriaceous, sessile leaves, are clad in hispidulous sheaths. The several-flowered raceme equals or surpasses the leaf. With the dorsal sepal deeply connate to the synsepal, the thickly fleshy sepals form a more or less erect, tubular flower. The petals are denticulate and apiculate, and with the central calli and biauriculate base, the lip is also similar other members of the subgenus.

Pleurothallis biceps Luer & Hirtz, Lindleyana 11: 150, 1996.

Ety.: From the Latin *biceps*, "two-headed," referring to the two-flowered inflorescence.

Plant medium in size, epiphytic, shortly repent and caespitose; roots numerous, slender. Ramicauls purple, erect, compressed and channeled toward the apex, 3-5 cm long, with 2-3 tubular sheaths toward the base. **Leaf** purple, erect, coriaceous, elliptical, acute, 3-5 cm long, 0.5-0.9 cm wide, narrowly cuneate below into a sessile base. **Inflorescence** a fascicle of successive single flowers, or more usually simultaneously 2-flowered racemes, borne by peduncles 5-6 mm long within a spathe 5 mm long, from the apex of the ramicaul; floral bract 1-1.5 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** dark purple, white between the veins and toward the base, thickly fleshy, obovate, concave, with rounded, minutely apiculate apices, microscopically pubescent externally, minutely pubescent within above the middle, the dorsal 6 mm long, 3 mm wide, connate to the lateral sepals for 3.5 mm to form a sepaline tube, the lateral sepals 5.5 mm long, connate 4 mm into a bilobed lamina 5 mm wide expanded; **petals** translucent with the midvein dark purple, subquadrate, obtusely acuminate, 2 mm long, 2 mm wide, both margins dilated; **lip** yellow, elliptical-oblong, 2.5 mm long, 1 mm wide, the apex rounded, denticulate-erose, the margins below the middle erect, thin and broadly rounded, the disc with a papallel pair of irregular carinae above the middle, and a pair of parallel rows of minute, tubercles below the middle, the base with a pair of large, thin lobules, hinged to the column-foot; **column** stout, winged above the lower third with a pair of teeth at the apex, 1.5 mm long, the foot thick, equally long, the anther, rostellum and stigma ventral.

ECUADOR: **Morona-Santiago**: epiphytic in forest along Río Yunganza below Limón, alt. 950 m, 17 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11853* (Holotype: MO).

This uncommon species from southeastern Ecuador is distinguished from all the others by a short, simultaneously two-flowered raceme of fleshy flowers with the sepals deeply connate into a tube to near the middle. The thick, fleshy free portions are rounded. Deep within the tube the lip is erose and bicrested.

Pleurothallis bissei Luer, Lindleyana 14: 108, 1999.

Ety: Named in honor of Dr. J. Bisse, former director of the Jardín Botánico de Habana.

Plant small, epiphytic, shortly repent with the rhizome stout, 2-3 mm long between ramicauls; roots slender. Ramicauls comparatively stout, erect, 1.5-2 cm long, enclosed mostly by a 2-3 coarsely scabrous-pubescent, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical, subacute, 20-27 mm long, 5-8 mm wide, the base cuneate, sessile. **Inflorescence** a sublax, distichous, simultaneously few-flowered raceme, 10-13 mm long including the peduncle ca. 2 mm long, borne from a spathe 3 mm long at the base of the leaf; floral bracts infundibular, 1.5 mm long; pedicels 0.5 mm long; ovary 1.25 mm long; **sepals** (color unknown) glabrous, the dorsal sepal elliptical-oblong, obtuse, concave, 6.25 mm long, 2.5 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals ovate-triangular, acute, carinate, 6 mm long, 2 mm wide, 3-veined, connate 2 mm, forming a shallow mentum with the column-foot; **petals** membranous, ovate, acute, minutely serrulate, 4 mm long, 2 mm wide, 3-veined; lip oblong, 3.5 mm long, 1.25 mm wide, broadly rounded at the apex, microscopically erose and papillose, with low, erect, marginal lobes below the middle, the disc shallowly concave between a pair of low calli on the middle third, with minutely serrulate crests, the base truncate, hinged to the base of the column-foot; column semiterete, 2.5 mm long, the anther and stigma ventral, the foot 1 mm long.

CUBA: **Holguin**: Mayarí, abajo de Sierra de Nipe, Loma de la Mensura, 31 Oct. 1977, *J. Bisse et al.* (Holotype: HAJB).

This small species is apparently uncommon and endemic in the Oriente of Cuba. It is characterized by a shortly repent rhizome and ramicauls clad in coarsely scabrous-pubescent sheaths. It is closely allied to the much larger *P. hirsutula* of Jamaica. The leaf is thick, elliptical, sessile, and about as long as the ramicaul. A short, simultaneously few-flowered raceme reaches about half the length of the leaf. The flowers are simple with more or less oblong sepals; ovate, acute, minutely serrate petals; and an oblong lip with a pair of low calli on the middle third.

Pleurothallis boliviana Rchb.f., Bonplandia 3: 224, 1855.

Ety.: Named for the country of origin.

Syn.: *Humboldtia boliviana* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis simacoana* Schltr., Repert. Spec. Nov. Regni Veg. 27: 54, 1929.
Ety.: Named for Hacienda Simaco where the species was collected.

Syn.: *Pleurothallis tripterocarpa* Schltr., Repert. Spec. Nov. Regni Veg. 27: 55, 1929.
Ety.: From the Greek *tripterocarpa*, "three-winged fruit," referring to the ovaries and capsules.

Syn.: *Acianthera boliviana* (Rchb.f.) Pridgeon & M.W.Chase, Lindleyana 16: 242, 2001.

Plant small, epiphytic, caespitose to shortly repent, with the rhizome stout, 0.5-1 cm long between ramicauls; roots slender. Ramicauls ascending-erect, terete, 2.5-3 cm long, enclosed below by 2-3 close, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical, subconduplicate, acute to subacute, 2-3.5 cm long, 1-1.5 cm wide, the base cuneate, sessile. **Inflorescence** an erect, distichous, simultaneously few-flowered raceme, 5-7 cm long, with the peduncle and rachis compressed, subtended by a spathe ca. 5 mm long at the base of the leaf; floral bracts narrowly acute, conduplicate, 8-10 mm long; pedicels 1-1.5 mm long; ovary 3 mm long; **sepals** yellow, orange to green, glabrous, fleshy, deeply and thickly carinate, the dorsal sepal narrowly triangular-oblong, acute, 8-9 mm long, 1.5-2 mm wide, the lateral sepals connate to near the apex into a thick, narrowly triangular-oblong, shortly and acutely bifid, bialate synsepal, 8 mm long, 3 mm wide unexpanded, minutely biapiculate; **petals** orange suffused with red, oblong-obovate, acute, 4.5 mm long, 1 mm wide, 3-veined, with margins slightly irregular above the middle; **lip** orange, thick, oblong, obtuse, 5 mm long, 1.25 mm wide, the disc shallowly concave between marginal calli on the middle third, the base subtruncate, obscurely biauriculate, hinged to the column-foot; **column** yellow suffused with red, semiterete, narrowly-winged, 4 mm long, with a foot 1 mm long.

BOLIVIA: **La Paz**: without collection data, 1846, *Bridges* (Holotype: W; Isotypes: K, US); without data, *Bridges 232* (BR); Nor Yungas, Milluguaya, alt. 1000 m, Dec. 1917, *O. Buchtien 4191* (holotype of *P. tripterocarpa* destroyed at B; lectotype here designated: AMES 25536, isolectotype: US); Hda. Simaco, on way Tipuani, alt. 1400 m, Feb. 1920, *O. Buchtien 5016* (holotype of *P. simacoana* destroyed at B; lectotype here designated: US); Mapiri region, San Carlos bei Sarampiuni, alt. 600 m, 26 Jan. 1927, *O. Buchtien 499* (AMES); D'Azero, Dec. 1845, *M. Weddell 3658* (K). **Cochabamba**: Ayopaya, Dec. 1935, *M. Cárdenas 3399* (AMES); Inquisivi, north of Inquisivi, alt. 2450 m, 16 Dec. 1988, *M. Lewis 882091* (LPB, MO).

This little species, widely distributed through central Bolivia, is closely related to the larger *P. tricarinata*. From the latter, it is distinguished by smaller flowers that are not engulfed by large, compressed floral bracts. The species are similar with a compressed peduncle and rachis. The fleshy-rigid sepals are similar with tall, thick carinae, and with the lateral sepals connate. The petals are acute and the lip is bicarinate and oblong.

Pleurothallis breviflora Lindl., Edwards's Bot. Reg. 27: Misc. 59, 1841.

Ety. From the Latin *breviflorus*, "short-flowered," referring to the "short, dumpy" flowers.

Syn.: *Humboldtia breviflora* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Plant medium in size, presumably epiphytic, repent; rhizome stout, 1.5-2 cm long, with 2-3 spotted sheaths; roots from nodes along the rhizome. Ramicauls stout, erect, 3-4 cm long, enclosed by 3 loose, tubular, spotted sheaths, with a fourth at the base and minutely pubescent. **Leaf** erect, thickly coriaceous, elliptical-obovate, obtuse, 5-6.5 cm long, 1.3-2.7 cm wide in the dried state, cuneate below into a subsessile base. **Inflorescence** a single flower or an abbreviated, congested, 2-flowered raceme, borne by thick peduncle ca. 1 mm long, with a broad, loose, spotted spathe ca. 10 mm long, from the apex of the ramicaul; floral bract minutely pubescent, 3-4 mm long, inflated, enclosing the base of the flowers; pedicels ca. 1 mm long; ovary long-villous, 2 mm long, 2.5 mm wide; **sepals** apparently mottled with purple,

thickly fleshy, pubescent externally below the middle, glabrous within, the dorsal oblong, obtuse, 7.5 mm long, 3.5 mm wide, free from the lateral sepals, the lateral sepals extremely thick, ovate-wedge-shaped, acute, shallowly channeled, 7.5 mm long, 3 mm wide; **petals** obovate, obtuse, with the margins minutely irregular above the middle, 4 mm long, 2.4 mm wide, 2-veined, with a thin, longitudinal carina above the labellar margin; **lip** spotted with purple, oblong, 5.25 mm long, 2.25 mm wide, the apex rounded, with obscure angles on either side, the margins below the middle erect, thin, obtuse, lateral lobes, the disc with a pair of verrucose calli above the middle, the base truncate with a pair of thin lobules, hinged to the column-foot; **column** stout, semiterete, with a small pair of teeth at the apex, 3 mm long, the foot thick, 2 mm long, the anther, rostellum and stigma ventral.

?MEXICO: without collection data, imported by *Messrs. Loddiges s.n.* (Holotype: K).
?BRAZIL: without collection data, cultivated in Hort. Bot. Leuvenensis, 1837, by *Martin Martens s.n.* (BR), C. Luer illustr. 18913.

This reputedly Mexican species has not been known to have been recollected since the introduction by Loddiges that was described by Lindley. Although no flower remains on the herbarium sheet, a very good watercolor painting had been added, no doubt made from a fresh flower.

In the "indeterminates" at BR, a single specimen of a plant cultivated by Martin Martens in 1837 exists. The origin of the plant was not indicated, but most of Martens's collections were Brazilian. Both this collection and Loddiges's collection at K are characterized by a stout ramicaul, and an inflated, spotted spathe at the base of a thickly coriaceous leaf. On the Martens's plant a short, congested, two-flowered raceme was still intact. One of the flowers was hydrated in ammonia and illustrated, leaving no doubt that it is the same as Lindley's long-lost *P. breviflora.*

The sepals are very thick and pubescent externally with a long-pubescent ovary. The petals are obovate with a thin carina above the lower margin reminiscent of *Masdevallia.* The lip is more or less standard for subgenus *Acianthera* with a pair of calli on the middle third within the forward margins of low, lateral lobes, and a minutely biauriculate base.

Pleurothallis carinata C.Schweinf., Bot. Mus. Leafl. 15: 85, 1951.
Ety.: From the Latin *carinatus*, "carinate," referring to the carinate petals.

Plant medium in size, epiphytic, shortly repent; rhizome stout, 1-2 cm long between ramicauls; roots slender. Ramicauls stout, erect, terete, 5-6 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, thickly coriaceous, elliptical, subacute, 5-8.5 cm long, 2-2.2 cm wide dry, cuneate below to the sessile base. **Inflorescence** a loose, simultaneously 1- to 3-flowered raceme, up to 2.5 cm long including the peduncle 2 cm long, subtended by a spathe less than 1 cm long, at the base of the leaf; floral bracts 3-4 mm long; pedicels 3 mm long; ovary 3 mm long; **sepals** fleshy, glabrous, subcarinate, dark yellow, the dorsal sepal narrowly ovate, acute, 11.5 mm long, 3 mm wide, 3-veined, the lateral sepals connate 5 mm into an ovate, acute, deeply bifid lamina, 11 mm long, 6 mm wide, 6-veined; **petals** translucent, oblong, acute, minutely denticulate above the middle, 6 mm long, 1.5 mm wide, 1-veined, with a smooth, longitudinal carina within each margin; **lip** dark yellow, thick, elliptical-trilobed, obtuse, 5 mm long, 2 mm wide, the lateral lobes erect on the lower third with an acute, antrorse angle, the disc shallowly sulcate between a parallel pair of low, smooth calli on the middle third, the base broadly subunguiculate, truncate, with a minute lobe at the corners, hinged to the column-foot; **column** semiterete, shallowly winged above the middle, 5 mm long, dentate at the apex, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

PERU: **Cuzco**: Quispicanchis, Murayaca, Marcapata, alt. 1300-1600 m, 12 Dec. 1943, *C. Vargas 3757* (Holotype: AMES; Isotype: CUZ); C. Luer illustr. 20224. **Apurimac**: Abancay, alt. 3000 m, 14 Jan. 1950, *C. Vargas 8977* (CUZ).

This species is apparently endemic in mountainous southern Peru. It is characterized by stout ramicauls produced by a stout, creeping rhizome, and bearing a thickly coriaceous, elliptical, sessile leaf. One to three yellow flowers are produced in a short raceme. The sepals and petals are acute, and the petals bear a pair of smooth carina on the middle third, reminiscent of the pair of serrated calli on the petals of *P. quadriserrata.* The lip is acutely lobed on the lower third, while a pair of smooth calli are present on the middle third.

Pleurothallis casapensis Lindl., Edwards's Bot. Reg. 28: misc. 76, 1842.
Ety.: Named for the community of Casapi, Peru, where this species was first collected.

Syn.: *Pleurothallis chamensis* Lindl., Orchid. Linden. 2, 1846.
Ety.: Named for the Río Chamá in western Venezuela where the species was collected.

Syn.: *Pleurothallis triangularis* Klotzsch & Karst., Allg. Gartenzeitung 21: 361, 1847.
Ety.: From the Latin *triangularis*, "triangular," referring to the ramicauls.

Syn.: *Pleurothallis triquetra* Klotzsch ex Lindl., Folia Orchid. *Pleurothallis* 13, 1859.
Ety.: From the Latin *triquetrus*, "three-edged," referring to the ramicauls.

Syn.: *Humboldtia casapensis* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Humboldtia chamensis* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis wolfiana* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 64, 1921.
Ety.: Named for Theodor Wolf, noted for his knowledge of the Andean regions of Ecuador.

Syn.: *Pleurothallis coffeicola* Schltr., Repert. Spec. Nov. Regni Veg. 27: 50, 1929.
Ety.: From the Latin *coffeicola*, "dwelling in coffee trees," referring to the habitat.

Syn.: *Acianthera casapensis* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 242, 2001.

Syn.: *Acianthera coffeicola* (Schltr.) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant small to large, epiphytic to lithophytic, shortly repent with the rhizome stout, 0.2-1 cm long between ramicauls; roots slender. Ramicauls ascending to erect, slender to stout, 3-10 cm long, compressed above the middle, with 2-3 thin, tubular sheaths at the base. **Leaf** more or less spreading, thickly coriaceous, elliptical to broadly ovate, subacute to obtuse, 3-7 cm long, 2-4 cm wide, with the base rounded to more or less cordate, sessile, with the margins of the leaf sometimes decurrent a short distance on the wings of the ramicaul. **Inflorescence** a congested, simultaneously 2- to 6-flowered raceme, 1.5-2.5 cm long including the peduncle 0.5-1 cm long, borne on top of the leaf, subtended a spathe 5-10 mm long, at the base of the leaf; floral bracts thin, 2-3 mm long; pedicels 1.5-2.5 mm long; ovary cellular-glandular, 1-2 mm long; **sepals** yellow-green to orange, glabrous to cellular-glandular externally, the dorsal sepal oblong-obovate, subacute to obtuse, apiculate, thickened above the middle, 6-10 mm long, 1.75-3 mm wide, 3-veined, the lateral sepals connate into an elliptical synsepal, 5-9 mm long, 3.5-5 mm wide, 6-veined, the apex bifid with the tips acute, apiculate; **petals** translucent, elliptical-obovate, acute, serrate-fimbriate above the lower third, 2.5-3.5 mm long, 1-1.5 mm wide, 1-veined; **lip** yellow to orange, thick, oblong-subtrilobed, 2.75-4.5 mm long, 1.25-2 mm wide, the apex ovate, obtuse, minutely serrulate, the lateral lobes below the middle, erect, broadly rounded, the disc shallowly channeled between a pair of parallel, subverrucose calli on the middle third, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** semiterete, shallowly winged, denticulate at the apex, 2-3.5 mm long, the foot 1-2 mm long, the anther, rostellum and stigma ventral.

Representative collections:
PERU: **Huanuco**: Cassapi, *Mathews 1830* (Holotype: K). **Amazonas**: Bongará, Sipabamba, Quebrada Fortuna, alt. 1300 m, 5 May 1981, *K. Young & M. Eisenberg 317* (MO). **Cajamarca**: Chota, Llamahuambos, forest above Huarimarca, alt. 3000 m, 18 Mar. 1997, *A. Sagástegui & S. Leiva 15990* (F, HAO, MO). **Junín**: Yaupe, alt. 1580 m, 2 July 1861, *F. Woytkowski 6402* (MO).
BOLIVIA: **La Paz**: Larecaja, vicinity of Sorata, monte Chilieca, alt. 2700 m, 1860, *G. Mandon 1130* (BR, K, W); Larecaja, between Sorata and Tipuani, Hda. Simaco, on coffee trees, alt. 1400 m, Dec. 1922, *O. Buchtien 7214* (holotype of *P. coffeicola* presumably destroyed at B: lectotype here designated: US); Murillo, in trees along Río Zongo, alt. 1550 m, 25 Aug. 1991, *C. Luer, J. Luer et al. 15354* (MO); Nor Yungas, forest between Chuspipata and Coroico, alt. 1800 m, 27 Aug. 1991, *C. Luer, J. Luer et al. 15372* (MO); Saavedra, trees along river below Charazani, alt. 2550 m, 19 Nov. 1992, *C. Luer, J. Luer, J. del Hierro, W. Teague, R. Vásquez & D. Ric 16448* (MO). **Cochabamba**: Carrasco, Sehuencas, along Río Lope Mendoza, alt. 2450 m, 13 Jan. 1988, *C. Luer, J. Luer, R. Vásquez, T. & D. Mulder & A. Vogel 12809* (MO); deserted road from Villa Tunari to Cochabamba, alt. 1350 m, 30 Jan. 1997, *C. Luer, J. Luer, W. Teague, R. Vásquez & D. Ric 18323* (MO). seasonally dry forest remnant north of Cocapata, alt. 2380 m, 5 Feb. 1997, *C. Luer, J. Luer, W. Teague, R. Vásquez & D. Ric 18387* (MO). **Tarija**: Arce, road to Bermejo, alt. 600 m, 21 Apr. 1983, *J.C. Solomon 9939* (MO); valley of the Río Chillaguatas, between Sidras and Tariquia, alt. 1100 m, 14 Oct. 1983, *J.C. Solomon 11288* (MO).
ECUADOR: **Pichincha**: west slope of Pichincha, alt. 8,000 ft., *W. Jameson 33* (K); Pichincha, *W. Jameson 55* (W). **Napo**: Río Topo, alt. 1300 m, *A. Hirtz 1840* (MO); above Baeza toward Quito, alt. 1840 m, 30 June 1986, *C.H. Dodson & T.A. Dodson 16536* (MO). **Pastaza**: below Río Negro, alt. ca. 1500 m, Mar. 1976, *C. Luer, J. Luer & P. Taylor 103A* (SEL). **Bolívar**: between Guaranda and Catarama, alt. 1200 m, July 1991, cultivated in Chamblee, GA, *FL Stevenson 92-0530-2* (MO). **Chimborazo**: Río Chasuan at foot of Chimborazo, alt. 3500 m, Aug. 1860, *R. Spruce 6131* (K, W); near Puente de

Chimbo, *A. Sodiro s.n.* (holotype of *P. wolfiana* lost at B). **Morona-Santiago**: near Chiguinda, cultivated at Ecuagenera, Gualaceo, 5 Mar, 2001, *C. Luer 19697* (MO). **Loja**: epiphytic along new road north of Loja, alt. 2700 m, 2 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12581* (MO). **Zamora-Chinchipe**: upriver from Valladolid, Río Yambala, alt. 1650 m, 10 Apr. 1986, *D. D'Alessandro 521* (MO): pass south of Yangana toward Valladolid, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer, J. Kuijt & D. D'Alessandro 9602* (MO).

COLOMBIA: **Santander**: cloud forest above Villacaro, Alto de San Francisco, alt. 2850 m, 11 May 1984, *C. Luer, J. Luer, R. Escobar & E. Valencia 10279* (MO). **Cundinamarca**: "Bogota," *Karsten 88* (W); above Pacho, alt. 2000-2600 m, Feb. 1892, *F.C. Lehmann 7099* (K); Páramo de Guasca, alt. 9,800 ft., 15 Dec. 1938, *E.K. Balls B.5728* (K). **Antioquia**: Cañasgordas, west Andes of Antioquia,alt. 1600-2000 m, *F.C. Lehmann s.n.* (HK 95); near Medellín, cultivated by Padre Sergio, 28 Jan. 1978, *C. Luer 2346* (SEL). **Cauca**: near Popayán, alt. 5,000 ft., 12 May 1878, *F.C. Lehmann s.n.* (W); above Popayán, alt. 2400-2900 m, *F.C. Lehmann 7100* (W). **Nariño**: east Cordillera of Pasto, alt. 10,000 ft., 14 June 1878, *F.C. Lehmann s.n.* (W); La Laguna above Pasto, alt. 2500-3000 m, without date, *F.C. Lehmann 4509* (K); Without locality, *Purdie s.n.* (K). **Putumayo**: Sibundoy, alt. 2100 m, 19 Feb. 1881, *F.C. Lehmann 345* (BR, K, L, W).

VENEZUELA: **Aragua**: Colonia Tovar, 1854-55, *A. Fendler 1483* (BR, K, MO, W); 1891-92, *Eggers 13448* (BR). **Dist. Fed.** without locality, *Karsten s.n.* (holotype of *P. triquetra*: K); "Caracas", alt. 6,000 ft., *E. Otto 911* (holotype of *P. triangularis*: K; isotype: W). **Falcon**: Sierra de San Luis, between Curimagua and La Chapa, alt. 1310 m, 6 Mar. 1993, *T.B. Croat 74524* (MO). **Anzoategui**: Libertad, Montañas Negras, 28 Nov. 1981, *G. Davidse & A.C. Gonzáles 19508* (MO, US, VEN). **Yaracuy**: Nirgua-San Filipe border, Cerro La Chapa, alt. 1200-1300 m, 21 Oct. 1982, *G. Davidse, R. Liesner & J.A. Steyermark 20829* (MO, US, VEN). **Mérida**: lithophytic along Río Chamá, Apr. 1842, alt. 5,000 ft., *J. Linden 639* (holotype of *P. chamensis*: K; isotype: W). Mariquita, 1849, *J.J. Triana 123* (K). **Táchira**: Córdoba: Fila de Paramito north of Mesa de Tigre, alt. 1200-1300 m, 16 Nov. 1982, *G. Davidse & A.C. González 22402* (MO, US, VEN).

The first member of this frequent and widely distributed species-concept was described as *P. casapensis* by Lindley from a Peruvian collection by Mathews, and next, from a Venezuelan collection by Linden, described as *P. chamensis*. The two concepts represent variations of one variable species. Certain individuals appear specifically distinct until the multitude of intermediate variations are considered. Lindley used a cordate base of the leaf to distinguish *P. casapensis*, and a rounded or cuneate base to identify the latter, but these features merge and are inconstant in both concepts. Plants and flowers vary greatly in size, but variations between the larger and the smaller are legion. The smaller are commonly regarded as *P. casapensis*, while the larger, as *P. chamensis*. Except for size, the flowers are morphologically constant.

A shortly creeping rhizome produces erect, narrowly triquetrous ramicauls that bear obtuse, broadly elliptical, spreading leaves that are broadly cuneate, rounded, or subcordate at the base. The short, congested inflorescence emerges from the base to lie on top of the more or less spreading leaf. The margins of the leaf are sometimes shortly decurrent on the ramicaul.

Schlechter's description and figure of the floral parts of *P. wolfiana* apply very well to this variable species, as he acknowledged. The only differecnce is the contracted base of the lip of Sodiro's collection which appears to have been from an old flower.

As with *P. agathophylla* and *P. phyllostachys*, the very similar flowers are yellowish green to yellow, becoming orange with age. The dorsal sepal is erect, oblong and thickened toward the obtuse apex. The lateral sepals below are connate into a shortly bifid lamina. The small petals are shortly fimbriate. The lip is thick, obtuse, minutely denticulate, with broadly rounded, erect, lobelike margins below the middle and with a pair of calli on the middle third.

Pleurothallis agathophylla is distinguished by smaller, rounded leaves and a long-repent rhizome. *Pleurothallis phyllostachys* is distinguished by the larger habit with the sides of the leaf long-decurrent on the wings of the ramicaul so that the raceme is borne well above the base of the leaf.

Pleurothallis cerberus Luer & R.Vásquez, Phytologia 46: 360, 1980.

Ety.: Named for Cerberus, a mythological, three-headed, dog-like monster.

Syn.: *Acianthera cerberus* (Luer & R.Vásquez) Pridgeon & M.W.Chase, Lindleyana 16: 242, 2001.

Plant medium in size, epiphytic, shortly repent, the rhizome stout, ca. 0.5 cm long between ramicauls; roots slender. Ramicauls erect, stout, sharply compressed and sulcate above, 10-17 cm long, with a tubular sheath above the base and 2-3 sheaths about the base. **Leaf** erect, thickly coriaceous, elliptical, obtuse to subacute, 7-10 cm long, 2.5-3.2 cm wide, cuneate below to a sessile base. **Inflorescence** 1-2 congested, distichous, simultaneously 2- to 4-flowered racemes, ca. 1.5 cm long including the peduncle less than 1 cm long, borne at the base of the leaf, from a spathe ca. 5 mm long; floral bracts tubular, 3-4 mm long; pedicels stout, shortly pubescent, 2 mm long; ovary shortly pubescent, 2 mm long; **sepals** brown with short, white pubescence externally, strongly tuberculate-verrucose above the middle within, thickly fleshy, the dorsal sepal oblong-obovate, subacute, apiculate, 9.5 mm long, 2.5 mm wide, 3-veined, free from the lateral sepals, the lateral sepals lightly adherent into a curved, elliptical, concave synsepal, the sepals easily separated, each falcate, subacute, 6 mm long, 2.25 mm wide, 3-veined; **petals** translucent, purple at the base, elliptical-obovate, acute, serrate above the middle, 4 mm long, 1.5 mm wide, 1-veined; **lip** dull yellow, suffused with purple, thick, oblong-subtrilobed, 3 mm long, 1.25 mm wide, the apex rounded, minutely verrucose, the lateral lobes erect, below the middle, oblong, obtuse, denticulate, the disc with a thick pair of parallel, verrucose carinae from the base to near the apex, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** dark red, winged above the middle, 2.5 mm long, the foot pubescent, 2 mm long, the anther and stigma ventral.

BOLIVIA: *La Paz*: Sud Yungas, collected near Chulumani by Dino Menato, flowered in cultivation at Chulumani, 1 Feb. 1980, *C. Luer & R. Vásquez 5048* (Holotype: SEL).

This species, apparently endemic in the Sud Yungas of Bolivia, is characterized by the sharply winged ramicaul with a shorter, elliptical leaf. A crowded, few-flowered raceme is borne at the base of the leaf. The thickly fleshy sepals are brown and covered by a short, white pubescence. Within, the sepals are coarsely verrucose; the petals are serrate; and the lip is oblong with small, erect marginal lobes below the middle.

Pleurothallis chamelopoda Luer, Orquideología 20: 201, 1996.

Ety.: From the Greek *chamaelopodion*, "a creeping foot," referring to the long-repent rhizome.

Plant medium in size, epiphytic, long-repent, the rhizome slender, up to 15 cm long or longer, 1-2.5 cm long between ramicauls; roots slender along the rhizome. Ramicauls ascending-erect, 7-9 cm long, slender, sharply 3-winged toward the apex, with a thin, tubular sheath above the base. **Leaf** suberect, coriaceous, elliptical, sessile, subacute, 3-3.5 cm long, 1.5-1.8 cm wide. **Inflorescence** a fascicle of successive, single-flowered peduncles, borne on top of the leaf, subtended by a deciduous spathe 5 mm long, from the apex of the ramicaul at the base of the leaf; peduncles 5-10 mm long; floral bract 2 mm long; pedicel 1.5 mm long, with a 1 mm long filament; ovary 1.5 mm long; **sepals** membranous, glabrous, the dorsal sepal red-lilac, yellow-green toward the apex, linear-oblong, acute, 7 mm long, 1.3 mm wide, 3-veined, free from the lateral sepals, the lateral sepals yellow-green, more or less suffused with brown, connate into an ovate synsepal, 6.5 mm long, 3.3 mm wide, 6-veined, the apex shallowly bifid with the tips acute; **petals** translucent green with brown midvein, elliptical, acute, fimbriate above the middle, 2.25 mm long, 0.75 mm wide, 1-veined; **lip** yellow-green, oblong-trilobed, 3 mm long, 1 mm wide, the apex obtuse, with narrowly obtuse, erect lateral lobes below the middle, the disc with a pair of oblique, subverrucose calli on the middle third from the bases of the lateral lobes, concave between, the basal third thickened, subunguiculate, truncate, bilobulate, hinged to the column-foot; **column** slender, semiterete, 1.5 mm long, toothed at the apex, the foot 0.75 mm long, the anther, rostellum and stigma ventral.

COLOMBIA: **Cauca**: epiphytic along Río Timbuiquí, alt. 200-400 m, April and May 1900, *F.C. Lehmann B.T. 346* (Holotype: K), C. Luer illustr. 17097.

This species is apparently endemic in the forests of Pacific coastal Colombia, where it was collected by Consul Lehmann in 1900. It is distinct vegetatively with the slender, long-repent rhizome with slender, ascending ramicauls that bear a much shorter elliptical leaf. Although narrow, the ramicaul is triquetrous toward the leaf. The inflorescence consists of a fascicle of single-flowered peduncles borne from the base of the sessile leaf. The flower, not unlike that of *P. lanceana* and its relatives, is small and membranous. The colors were duly noted when collected by Lehmann.

Pleurothallis chionopa Luer, Phytologia 46: 361, 1980.

Ety.: From the Greek *chionopos*, "snow white," referring to the flowers.

Syn.: *Acianthera chionopa* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 242, 2001.

Plant small, epiphytic, repent, the rhizome slender, 1.5-4 cm between ramicauls; roots slender. Ramicauls erect, slender, slightly compressed above, 4-8 cm long, with 2-3 tubular sheaths about the base. **Leaf** suberect, coriaceous, ovate, acute, 3-5 cm long, 1.5-2 cm wide, the base rounded, sessile. **Inflorescence** a congested, distichous, simultaneously 6- to 8-flowered raceme, ca. 2 cm long including the peduncle ca. 1 mm long, borne from a spathe 3-4 mm long at the base of the leaf; floral bracts 2 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** snow white, glabrous, fleshy, the dorsal sepal elliptical-oblong, subacute, apiculate, 7 mm long, 2 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into an ovate, obtuse, apiculate lamina, concave toward the base, 6.5 mm long, 3.25 mm wide, 6-veined; **petals** translucent white, obovate, acute, 2.25 mm long, 0.5 mm wide, 1-veined, with the margins minutely serrate above the middle; **lip** white, thicken below the middle, oblong-trilobed, 2 mm long, 0.8 mm wide, the apex obtuse, minutely denticulate, the lateral lobes erect, broadly falcate, retrose, above the base, the disc with a thick pair of intramarginal, verrucose carinae extending from the lobes to the middle, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** winged above the middle, toothed at the apex, 1.5 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Napo**: epiphytic in cloud forest north of Baeza, alt. 1650 m, 30 Oct. 1979, *C. Luer, J. Luer & A. Hirtz 4494* (Holotype: SEL).
COLOMBIA: **Santander**: vicinity of Suratá, alt. 1700 m, 4-10 June 1927, *E.P. Killip & A.C. Smith 16751* (AMES, NY, US).

This species, known locally in both Ecuador and Colombia, is easily recognized by the long, repent rhizome; slender, erect ramicauls and ovate leaves; and a short raceme of snow white flowers. The fleshy floral parts are not unusual for the subgenus: an oblong dorsal sepal; an ovate synsepal; small, minutely serrulate petals; and an oblong lip with a pair of calli becoming erect margins above the base. A minute apiculum noted originally on the lobes is not always present.

Pleurothallis chrysantha Lindl., Folia Orch. *Pleurothallis* 14, 1859, nom. nov.

Ety.: From the Greek *chrysanthos*, "golden orange flowers," referring to the inflorescence.

Syn.: *Pleurothallis aurea* A.Rich. & Galeotti, Ann. Sci. Nat. ser. 3, 3: 16, 1845, not Lindl. 1843.
Ety.: From the Latin *aureus*, "golden yellow," referring to the flowers.

Syn.: *Humboldtia chrysantha* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.
Syn.: *Pleurothallis hartwegiaefolia* H.Wendl. & Kraenzl., Xenia Orchid. 3: 165, t.296, 1903.
Syn.: *Acianthera chrysantha* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant medium in size to large, epiphytic, caespitose to shortly repent, the rhizome thick, to 0.5 cm between ramicauls; roots slender. Ramicauls erect, stout, compressed and sulcate, 4-14 cm long, with 2-3 tubular sheaths about the base. **Leaf** erect, thickly coriaceous, ovate, narrowly obtuse, 6-11 cm long, 2-4 cm wide, cuneate to rounded at the base, sessile. **Inflorescence** 1-2 congested, distichous, simultaneously 2- to 3-flowered racemes, ca. 1.5 cm long including the peduncle less than 1 cm long, borne at the base of the leaf, from a spathe 6-9 mm long; floral bracts thin, infundibular, 3-4 mm long; pedicels stout, 2 mm long; ovary pubescent, 1.5 mm long; **sepals** yellow-green to orange, variously pubescent externally, thickly fleshy, the dorsal sepal oblong-obovate, obtuse, 5-6 mm long, 2-2.75 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into a broadly oblong, shallowly bifid synsepal, obtuse, concave toward the base, 4-5 mm long, 3.5-5 mm wide, each 3-veined; **petals** translucent yellow to tan, elliptical-oblong, subacute, minutely serrate, 3 mm long, 1.5 mm wide, 1-veined; **lip** heavily suffused with purple-brown, thick, oblong-subtrilobed, 3 mm long, 1.75 mm wide, the apex obtuse, minutely denticulate, the lateral lobes broadly rounded, erect, below the middle, the disc with a thick pair of parallel, verrucose carinae on the middle third from within the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** green, winged above the middle, toothed at the apex, 2.5 mm long, the foot thick, 2 mm long, the anther and stigma ventral.

MEXICO: **Oaxaca**: alt. 8,000-9,500 m, 1840, *H. Galeotti 5009* (Holotype of *P. aurea*: W); Barranca near San Lorenzo, road to Mitla, alt. 1900 m, 6 Apr. 1934, *O. Nagel 3796* (AMES, MO); Mitla, alt. 1800 m, 4 Dec. 1936, *E. Ostlund 6540* (AMES); near San Pedro el Alto, alt. 2400 m, 6 Dec. 1936, *O. Nagel 5322* (AMES, MO). **Michoacán**: on oaks near Uruapan, alt. 5,000 ft., 15 Nov. 1905, *G.C. Pringle 10136*

(AMES, K, LE, M, MO, W); region of Patzcuaro, alt. 2000 m, 21 Jan. 1933, *C. Halbinger 1582* (AMES). **México**: Temascaltepec, Carboneras, alt. 2000 m, 15 Dec. 1932, *G.B. Hinton 2796* (AMES, K, MO). **Guerrero**: between Milpillas and Atoyac de Alvarez, alt. 2325 m, 14 Jan. 1979, *T.B. Croat 45655* (MO); road to Filo de Caballo, near Chilpancingo, alt. 2250 m, 18 Jan. 1983, *D. Neill & F. Neill 483* (MO); southwest of Carrizalillo, road to puerto del Gallo, alt. 2600 m, 3 June 1983, *E. Martínez S. et al 3919* (MEXU, MO). Without locality, "Berge," flowered in cultivation at Herrenhausen, Hanover, Gernany, *H. Wendland s.n.* (holotype of *P. hartegiaefolia* presumably lost at B).

This species, apparently endemic in Mexico, is closely allied to *P. circumplexa*, differing primarily in the lack of decurrence of the margins of the leaf on the wings of the ramicaul. Plants growing in seasonally dry habitats develop thicker, water-conserving leaves and ramicauls. A short raceme of yellowish flowers is borne at the base of the leaf. As in *P. circumflexa*, the petals are minutely serrate, and the lip is thick with erect, broadly rounded margins below the middle.

Pleurothallis circumplexa Lindl., Edwards's Bot. Reg. 24: Misc. 24, 1838.

Ety.: From the Latin *circumplexus*, "interwoven around," referring to the leaves deeply decurrent onto the ramicaul.

Syn.: *Pleurothallis mesophylla* A.Rich. & Galeotti, Ann. Sci. Nat. ser. 3, 3: 16, 1845.
Ety.: From the Greek *mesophyllos*, "mid-leaved," referring to the position of the inflorescence.

Syn.: *Humboldtia circumplexa* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis pacayana* Schltr., Repert. Spec. Nov. Regni Veg. 21: 335, 1925, as *gacayana*.
Ety.: Named for Volcán Pacaya where the species was discovered.

Syn.: *Pleurothallis cingens* Ames & C.Schweinf., Sched. Orch. 10: 23, 1930.
Ety.: From the Latin *cingens*, "surrounding," referring to the leaf decurrent on the ramicaul.

Syn.: *Acianthera circumplexa* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant medium to large in size, epiphytic, caespitose; roots slender. Ramicauls erect, compressed, sharply 3-winged, broader toward the leaf, 10-20 cm long, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical-ovate, subacute, 8-15 cm long, 3-5 cm wide, with the base cuneate, decurrent on the ramicaul 1-4 cm. **Inflorescence** a congested, distichous, simultaneously several-flowered raceme, 2-3 cm long including the peduncle 0.5-1 cm long, borne near the center of the leaf, subtended a spathe 8-10 mm long, from the apex of the ramicaul above the insertion of the leaf; floral bracts 3 mm long; pedicels 1 mm long; ovary cellular-glandular, 1 mm long; **sepals** yellow-green, brown, to orange, shortly pubescent externally, the dorsal sepal oblong-obovate, obtuse, thickened above the middle, 6 mm long, 2-2.5 mm wide, 3-veined, the lateral sepals connate into a broadly elliptical synsepal, 4-5 mm long, 4 mm wide, 6-veined, the apex rounded, minutely notched; **petals** translucent, elliptical-obovate, acute, minutely serrate above the middle, 2.5-3 mm long, 1 mm wide, 1-veined; **lip** yellow to brown, thick, oblong-subtrilobed, 3-3.5 mm long, 1.5 mm wide, the apex verrucose, rounded, minutely serrate, the lateral lobes below the middle, erect, broadly rounded, the disc shallowly channeled between a pair of parallel, verrucose calli on the middle third, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** semiterete, winged above the middle, denticulate at the apex, 2-3 mm long, the foot thick, 2 mm long, the anther, rostellum and stigma ventral.

MEXICO: Without locality, *H. Galeotti s.n.* (Holotype: K). **Vera Cruz**: alt. 3,000 ft., 1840, *H. Galeotti 5132* (holotype of *P. mesophylla*: W). **Oaxaca**: alt. 7,000-8,000 ft., 1840, *H. Galeotti 5020* (W); near Mirador, Feb.- Mar. 1842, *Liebmann 7304* (orchid nr. 347, 349) (C, W); Sierra San Pedro Nolasco, 1843-1844, *C. Jurgensen 946* (K, W); **Veracruz**: Orizaba, 12 May 1866, *M. Bourgeau 2472* (K, LE); Zacuapan, 1892, *C.A. Purpus 20* (BR); Zacuapan 21 Mar. 1936, *C.A. Purpus 2963A* (AMES); near Orizaba, alt. 1200 m, 26 Apr. 1932, *O. Nagel 2548* (AMES); Volcano San Martin, alt. 500 m, 3 Jan. 1938, *O. Nagel 5770* (AMES). **Oaxaca**: region of Pluma Hidalgo, alt. 1400 m, 1 Feb. 1936, *O. Nagel 5313* (AMES). **Guerrero**: near Pan del Molino, alt. 600 m, *O. Nagel 1948* (AMES). **Chiapas**: between Bochil and Pichucalco, northwest of Pueblo Nuevo Solistahuacan, alt. 1900 m, 25 Jan. 1979, *T.B. Croat 46365* (MO).
EL SALVADOR: Cumbre del Caballo, alt. 1250 m, 16 Dec. 1968, *F. Hamer 15* (AMES).
GUATEMALA: without locality, Jan. 1866, *G. Bernoulli 277* (W). Santa Rosa, alt. 3,500 ft., May 1893, *E.T. Heyde & E. Lux 6240* (AMES, BR). **Alta Verapaz**: Cobán, alt. 4,000 ft., *H. Johnson 728* (AMES); Cobán, alt. 4,200 ft., 1881, *H. von Türckheim 645* (W); near Cobán, cultivated by O. Mittlestädt, 13 Feb. 1990, *C. Luer 14629* (K, MO). **Guatemala**: Amatitlán, Forêts de Las Cachiflanas, Volcán de Pacaya, Apr. 1921, *A. Tonduz 413* (holotype of *P. pacayana* destroyed at B; lectotype here designated: AMES 31262, illustr. of type).
COSTA RICA: Without localities, 1867, *A. Endres 13, 47, 317* (W). **San José**: near Quebrdillas north of Santa Maria de Dota, alt. 1800 m, 24 Dec. 1925, *P.C. Standley 43108* (AMES). **Guanacaste**:

Hda. Santamaría, alt. 720-850 m, 17 Jan. 1930, *C.W. Dodge, O. Jimenez, & W.L. Thomas 6319* (AMES). **Puntarenas**: Cordillera de Talamanca, upper Río Burú, alt. 2010 m, *L.D. Gómez et al. 21464* (MO); Cerro Burú, alt. 2000-2300 m, 20 Aug. 1983, *G. Davidse et al. 23816* (MO). **San José**: Piedades de Puriscal, alt. 1170 m, Feb. 1913, *Otón Jiménez 851* (CR); Cerros de Escazú, around Jaular, alt. 2000-2200 m, 16 Aug. 1989, *G. Vargas, J. Sánchez & G. Barrantes 729* (CR). La Fuente, alt. 1200 m, 15 Sept. 1925, *A. Alfaro 186* (holytype of *P. cingens*: AMES; isotype: US).

This species is relatively frequent and widely distributed from Mexico into Costa Rica. It is characterized by the leaf deeply decurrent on a winged ramicaul so that the raceme is borne near the middle of the blade of the leaf. The racemes are short and distichous. The flowers are extremely similar to those of *P. chrysantha*, and they vary greatly in size.

Pleurothallis cogniauxiana Schltr., Repert. Spec. Nov. Regni Veg. 3: 246, 1907.

Ety.: Named for Alfred Cogniaux, eminent Belgian orchidologist for Brazil and the Caribbean.

Syn.: *Pleurothallis congruens* Luer, Selbyana 2: 391, 1978.

Ety.: From the Latin *congruens*, "congruous," referring to the similarity to *P. cogniauxiana*.

Syn.: *Acianthera cogniauxiana* (Schltr.) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Syn.: *Acianthera congruens* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant medium to large in size, epiphytic, shortly repent, the rhizome stout, 0.5-1 cm long between ramicauls; roots slender. Ramicauls ascending, erect, compressed and sharply 3-winged, 7-15 cm long, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, to spreading, rigidly coriaceous, elliptical or ovate, acute, 3-15 cm long, 1.5-11 cm wide, with the base cuneate or deeply cordate. **Inflorescence** a congested, distichous, simultaneously few- to several-flowered raceme, 1-4 cm long including the peduncle 0.5-1 cm long, subtended by a spathe 1-1.5 cm long, from the apex of the ramicaul at the base of the leaf; floral bracts inflated, 2-4 mm long; pedicels 1-3 mm long; ovary cellular-pubescent, 1-2 mm long; **sepals** green, flecked or spotted with purple, microscopically pubescent externally, minutely subverrucose within, the dorsal sepal obovate, obtuse, 7-8 mm long, 3 mm wide, 3-veined, the lateral sepals connate into a broadly elliptical synsepal, 5-6 mm long, 5.5-7 mm wide, 6-veined, the apex rounded, minutely bifid; **petals** translucent green, spotted with purple, elliptical, acute, sometimes acuminate, 3.5-4.5 mm long, 2-3 mm wide, with the margins minutely denticulate to irregular; **lip** green, spotted or suffused with purple to brown, thick, oblong-subtrilobed, 3.5-4.5 mm long, 2.5-3 mm wide, the apex verrucose, rounded, minutely denticulate, the lateral lobes below the middle, erect, broadly rounded, the disc shallowly channeled between a pair of parallel, subverrucose calli on the middle third, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** winged above the middle, denticulate at the apex, 3-3.5 mm long, the foot thick, 1.5 mm long, the anther, rostellum and stigma ventral.

COSTA RICA: **Alajuela**: between La Palma and Curillo, without known collector (Holotype destroyed at B; Lectotype: CR 2467); Without locality, ca. 1867, *A.R. Endres 288, 577* (W); Varablanca, 28 Nov. 1984, *E. Hágsater 6702* (AMO). **Cartago**: near Cartago, alt. 1500 m, 10 Jan. 1882, *F.C. Lehmann 1085* (BR); Cariblanco, July 1958, *C.H. Lankester s.n.* (SEL), C. Luer illustr. 16526. **San José**: La Hondura, alt. 1200-1500 m, 9 Mar. 1926, *P.C. Standley & J. Valerio 51927* (AMES); Dota, northeast of Cerro Lira, Finca Medio Queso, alt. 1800 m, 8 Dec. 1994, *G. Herrera & S. Martén 7413* (CR); Parqué Nac. Braulio Carrillo, Vásquez de Coronado, Est. Zurqui, alt. 1400-1500 m, 20 Sept. 1990, *S. Ingram & K. Ferrell-Ingram 547* (CR, MO, SEL); Dota, Cerro Lira, Finca Medio Queso, alt. 1800 m, 8 Dec. 1994, *G. Herrera & S. Martén 7413* (CR). **Puntarenas**: Monteverde Reserve, Cerro Amapola, alt. 1400 m, 21 Apr. 1989, *E. Bello 813* (MO).

NICARAGUA: **Matagalpa**: Bavaria Finca, alt. 1300 m, Feb. 1962, *A.H. Heller 4082* (SEL).

PANAMA: **Chiriquí**: vicinity of "New Switzerland," alt. 1800-2000 m, 6 Jan. 1939, *P.H. Allen 1383* (MO); along Río Machomonte near Volcán, alt. ca. 1300 m, 14 Sept. 1976, cultivated Dec. 1976, *C. Luer & H. Butcher 1289* (SEL); Cerro Hornito, alt. ca. 1700 m, 14 Dec. 1976, *C. Luer, A. Luer, R.L. Dressler, N.H. Williams & F L Stevenson 1367* (SEL); above Boquete, alt. ca. 1700 m, 18 Dec. 1976, *C. Luer, A. Luer & R.L. Dressler 1368* (SEL). **Colon**: along the Santa Rita lumber road, 28 Jan. 1968, *R.L. Dressler 3362* (SEL); Río Iguanita, March 1976, cultivated 9 May 1976, cultivated 9 May 1976, *N.H. Williams s.n.* (SEL), C. Luer illustr. 980. **Panama**: along the El Llano-Carti road, alt. 300 m, 3 March 1976, *C. Luer, J. Luer, P. Taylor & R.L. Dressler 987* (SEL).

ECUADOR: **Los Ríos**: Montañas de Ila, between Patricia Pilar and 24 de Mayo, alt. 540 m, 30 May 1976, *C.H. Dodson 6096* (SEL).

This species is relatively frequent in Costa Rica but uncommon elsewhere. It was illustrated and described in minutest detail by Endres about 1867 long before it was published by Schlechter. Vegetatively, it is very variable. The ramicaul is compressed, but varies from narrowly to broadly winged. The leaf is sessile but varies from broadly ovate and deeply cordate at the base to narrowly oblong and cuneate at the base. The raceme is a short, crowded, distichous raceme. The flowers are spotted and vary in minor details, but there is no correlation with the vegetative variations.

Pleurothallis compressicaulis Dod, Moscosoa 3: 113, 1981.

Ety.: From the Latin *compressicaulis*, "with compressed stems," referring to the ramicauls.
Syn.: *Acianthera compressicaulis* (Dod) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, compressed, erect, 1.5-5 cm long, enclosed below with 2 loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical-obovate, obtuse, sessile, 2.5-5 cm long, 1-1.7 cm wide, the base cuneate. **Inflorescence** an erect or arching, sublax, flexuous, more or less simultaneously several-flowered raceme, 4-7 cm long including the peduncle 2-3 cm long, borne from a spathe 5-10 mm long, at the base of the leaf, the apex of the ramicaul; floral bracts infundibular, acute, 4 mm long, the outer half hyaline, becoming dark and wrinkled; pedicels 1-1.5 mm long; ovary villous, 1 mm long, 2 mm broad; **sepals** fleshy, purple with numerous minute darker purple spots, cellular papillose, fringed-carinate, the dorsal sepal narrowly ovate, acute, 7.5 mm long, 2.25 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, shortly bifid, concave lamina, 9 mm long, 5 mm wide, 6-veined; **petals** purple-spotted, glabrous, elliptical, acute, 3.75 mm long, 2 mm wide, 1-veined; **lip** thick, oblong, 3.25 mm long, 1.75 mm wide, rounded at the apex, obscurely 3-lobed below the middle with erect, broadly rounded sides, the disc fleshy below the middle, becoming a pair of subverrucose calli on the middle third, the base truncate, with a pair of minute lobules, hinged to the tip of the column-foot; **column** stout, broadly winged above the middle, 3 mm long, the anther and stigma ventral, the foot thick, 1 mm long.

HAITI: Massif de la Hotte, Camp Perrin, road to Jérémie, Río Glacé, alt. 800 m, collected 22 Apr. 1982, flowered in cultivation 22 Jan. 1984, *D.D. Dod 895* (Holotype: JBSD; Isotypes: AMES, MO, NY, SEL, US), C. Luer illustr. 19039.
DOMINICAN REPUBLIC: San Juan: Parqué Nacional José del Carmen Ramírez, north of Arroyo Cano, alt. 400 m, 1 May 1986, *R. García & J. Pimentel 1284* (NY, UPRRP).

This species is uncommon in the mountainous forests of eastern Haiti and western Dominican Republic. As commonly found in the subgenus, the ramicauls are compressed and bear thickly coriaceous, sessile leaves. The flowers are borne simultaneously in distichous racemes that exceed the leaves. The hyaline, outer halves of the floral bracts become dark and crinkled, imparting a distinctive appearance. The short pedicels are contained within the floral bracts. The ovary is short, broad and densely villous. The fleshy, minutely spotted sepals are cellular papillose and carinate-crested. The petals are equally spotted, acute, and entire. The lip is typical for the subgenus.

Pleurothallis consatae Luer & R.Vásquez, Rev. Soc. Bol. Bot. 2(2): 133, 1999.

Ety.: Named for the community of Consata, near where the species was discovered.

Plant medium in size to large, epiphytic, shortly repent, the rhizome thick, ca. 1 cm between ramicauls; roots slender. Ramicauls ascending, erect, stout, more or less compressed and sulcate above, 12-18 cm long, with a tubular sheath below the middle and 2-3 sheaths about the base. **Leaf** erect, thickly coriaceous, narrowly elliptical, subacute, 15-23 cm long, 2.5-3.5 cm wide, narrowly cuneate below into a sessile base. **Inflorescence** a congested, distichous, simultaneously 2- to 4-flowered raceme, ca. 15 mm long including the peduncle ca. 5 mm long, borne at the base of the leaf, from a spathe 1 cm long; floral bracts thin, minutely pubescent, 2.5 mm long; pedicels stout, 1.5 mm long; ovary minutely pubescent, 2 mm long; **sepals** thickly fleshy, light green, minutely pubescent externally, slightly tuberculate-verrucose above the middle within, suffused with purple basally, the dorsal sepal oblong-obovate, subacute to obtuse, apiculate, 7.5 mm long, 3 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into a broadly elliptical, concave, obtuse, shortly bifid, biapiculate synsepal, 7.5 mm long, 5 mm wide, 6-veined; **petals** translucent yellow, marked with purple, elliptical-oblong, obtuse to subacute,

minutely irregular-subserrate, 2.25 mm long, 1.5 mm wide, 1-veined; **lip** cream, dotted with purple, thick, oblong-trilobed, 2.75 mm long, 1 mm wide, the apex rounded, minutely verrucose, microscopically serrate, the lateral lobes below the middle, erect, oblong, broadly rounded, the disc with a thick pair of parallel, verrucose carinae on the middle third anterior to the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** purple, winged above the middle, minutely toothed at the apex, 2 mm long, the foot thick, 1.5 mm long, the anther purple.

BOLIVIA: **La Paz**: Muñecas, near Consata, alt. 1200 m, 21 Jan. 1981, flowered in cultivation 2 June 1981, *C. Luer, J. Luer & R. Vásquez 6323* (Holotype: SEL).

This species is allied to the frequent and sympatric *P. aphthosa* Lindl., and Brazilian *P. hoffmannseggiana* Rchb.f. and *P. oligantha* Cogn. The flowers of *P. consatae* are thickly fleshy, foul-smelling, and much smaller than those of *P. aphthosa*. The lateral sepals are connate to near the tips, and the lip differs with a well-developed, erect, marginal lobe below the middle.

Pleurothallis cordatifolia Dod, Moscosoa 1: 57, 1976.

Ety.: From the Latin *cordatifolius*, "with cordate leaves," referring to the leaves.

Syn.: *Acianthera cordatifolia* (Dod) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls stout, terete, erect, 2-7 cm long, with a loose, tubular sheath below the middle and 2-3 other sheaths about the base. **Leaf** suberect to spreading, thickly coriaceous, elliptical-ovate, subacute to obtuse, sessile, 3-6 cm long, 1.5-3 cm wide, the base rounded to shallowly cordate. **Inflorescence** a single, successive flower, borne on the dorsum of the leaf from a spathe at the base, 10-13 mm long, enclosing the peduncle, pedicel and floral bract; peduncle stout, thick, 1-1.5 mm long; pedicels 5-6 mm long; floral bracts thin, tubular, ca. 5 mm long; ovary 2 mm long; **sepals** yellow, fleshy, glabrous, the dorsal sepal narrowly obovate, obtuse, apiculate, 8.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals connate into an oblong-ovate, shallowly concave lamina, 7.5 mm long, 5 mm wide, 6-veined, the apices acute, free for 1-2 mm; **petals** glabrous, oblong-subsigmoid, acute, microscopically serrulate, 4.5 mm long, 1.25 mm wide, 3-veined; **lip** elliptical-oblong, rounded at the apex, 4.5 mm long, 2 mm wide, the margins thin, low and erect below the middle, the base truncate with a minute lobule on either side, hinged to the tip of the column-foot; **column** stout, winged and denticulate at the apex, 3.5 mm long, the anther and stigma ventral, the foot 1 mm long.

DOMINICAN REPUBLIC: Los Patios, Jorgillos, el Cercado, alt. 1640 m, 5 Nov. 1973, cultivated 5 Nov. 1975, *D.D. Dod 509* (Holotype: SDM; Isotypes: AMES, NY, SEL, US), C. Luer illustr. 19038; Barahona: Mt. Laho, between La Cueva and Placer Bonita, alt. 4,500 ft., 1 Aug. 1950, *R.A. Howard 12276* (AMES); Cordillera de Yaroa, alt. 850 m, 28 June 1968, *A.H. Liogier 11872* (NY). Barahona: Argentina, from Polo to Enriquillo, alt. 1200 m, Apr. 1969, *D. Dod 138* (AMES, NY); Jamao, La Cumbre, north of Moca, alt. 700-800 m, 27 May 1969, *A.H. Loigier 15391* (AMES, NY). **Puerto Plata**: Loma del Puerto, alt. 750 m, 18 Sept. 1969, *A.H. Liogier 15919* (NY); Cordillera Septentrional, Loma Diego, alt. 1249 m, 4 Mar. 1983, *T. Zanoni & J.T. Mickel 25573* (NY). Duvergé, above Aguacata, alt. 1200 m, collected by D. Dod, May 1971, *A.H. Liogier 18066* (NY). La Pradera, El Cercado, alt. 1200 m, collected by D. Dod, 10 Nov. 1973, *A.H. Liogier 20771* (NY).

This species from the mountains of Hispaniola is most similar to the common and variable *P. casapensis* of the Andes. It varies from the latter by terete ramicauls and an ovate, thickly coriaceous leaf that bears a single, successive flower from a spathe at the shallowly cordate base. The flowers of the two species are very similar.

Pleurothallis costabilis Luer & R.Vásquez, Lindleyana 6: 94, 1991.

Ety.: From the Latin *costabilis*, "like ribs," referring to the appearance of the habit.

Plant medium in size, epiphytic, repent, the rhizome stout, 10-20 cm long, 1.5-2 cm long between ramicauls; roots coarse. Ramicauls relatively stout, erect, 9-13 cm long, enclosed by 4 tubular sheaths, often shed. **Leaf** erect, thick, terete, acute, 10-12 cm long, 0.4-0.5 cm wide and deep, the base sessile. **Inflorescence** a fascicle of single, successive flowers produced from the apex of the ramicaul with a spathe 10-12 mm long, the peduncles 2-3 mm long; floral bract thin, 3-4 mm long; pedicel 2 mm long; ovary subverrucose, 2 mm long; **sepals** white with thin purple veins, fleshy, glabrous, not widely spread, the dorsal sepal oblong, concave, curved, subacute, 6 mm long, 2 mm wide unexpanded, the lateral sepals connate only near the base but lightly adherent into an ovate, concave lamina, 6 mm long, 4 mm wide unexpanded, the apices approximate, acute; **petals** white, membranous, narrowly oblong, acute, 4 mm long, 1 mm wide; **lip** red-purple, oblong-trilobed, 4.5 mm long, 1.8 mm wide, the apex thick, rounded, retuse, minutely apiculate, minutely denticulate-erose, the lateral lobe below the middle, erect, uncinate, acute, antrorse, the disc featureless, the base subtruncate, hinged to the column-foot; **column** white, semiterete, 3 mm long, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

BOLIVIA: **La Paz**: Nor Yungas, epiphytic in forest north of Caranavi toward Alto Beni, alt. 1500 m, 26 Jan. 1988, *C. Luer, J. Luer, R. Vásquez, J. Solomon, T. & D. Mulder & A. Vogel 12927* (Holotype: MO).

This species, apparently endemic in the Yungas of Bolivia, is characterized by the stout, creeping rhizome with tall, ascending ramicauls that give the plant an appearance of bearing ribs. The leaves are narrowly terete and nearly as long as the ramicauls. The short-pedunculate flowers are produced singly and successively in a fascicle at the apex of the ramicaul. The sepals are fleshy, concave and glabrous. The lip is thick and oblong with an erose apex and a pair of uncinate lobes below the middle.

Pleurothallis crassilabia Ames & C.Schweinf., Sched. Orch. 8: 25, 1925.

Ety.: From the Latin *crassilabius*, "with thick lip," referring to the labellum.

Plant medium in size, epiphytic, shortly repent, the rhizome stout, 0.5-2 cm long between ramicauls; roots slender. Ramicauls ascending, erect, compressed, triquetrous, 5-16 cm long, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, to suberect, rigidly coriaceous, ovate, subacute, 6-8.5 cm long, 3-5 cm wide, with the base sesssile, cordate, rounded. **Inflorescence** a congested, distichous, simultaneously few- to several-flowered raceme, 2.5-3 cm long including the peduncle ca. 0.5 cm long, subtended by a spathe ca. 1 cm long, at the base of the leaf; floral bracts 3 mm long; pedicels 2 mm long; ovary 1 mm long; **sepals** yellow-orange, fleshy, glabrous, the dorsal sepal obovate, obtuse, thickened above the middle, 10 mm long, 3.5 mm wide, 3-veined, the lateral sepals connate into an elliptical bifid synsepal, 9 mm long, 6.5 mm wide, 6-veined, the apices acute; **petals** translucent yellow, obovate, obtuse, 2.5 mm long, 1 mm wide, 1-veined, with the margins denticulate-lacerate above the middle; **lip** yellow, thick, oblong-elliptical, 5 mm long, 2.25 mm wide, the apex rounded, microscopically subdenticulate, with the 3 veins indistinctly thickened on the dorsum, the sides below the middle erect, broadly rounded, the disc shallowly channeled between the thickened sides, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** winged above the middle, subdenticulate at the apex, 3 mm long, the foot thick, 2 mm long, the anther, rostellum and stigma ventral.

COSTA RICA: **Cartago**: Alto de La Estrella, 26 Mar. 1924, *C.H. Lankester 807* (Holotype: AMES), C. Luer illustr. 17166; Tobosi, alt. 5,000 ft., *C.H. Lankester 535* (AMES).

Although Lankester described this species as being common and frequently abundant south of Cartago, this is certainly not the situation today. I know of no subsequent collection. It is characterized by a compressed ramicaul, an ovate, sessile leaf and a short raceme of "chrome yellow" flowers. The sepals are fleshy, the petals are lacerate, and the thick lip is elliptical without marginal lobes and without the pair of calli on the disc as seen in its relatives.

Pleurothallis cremasta Luer & J.J.Portilla, Selbyana 22: 119, 2001.

Ety.: From the Greek *kremastos*, "hanging," referring to the habit.

Plant medium in size, epiphytic, pendent, caespitose; roots slender. Ramicauls slender, pendent, 3-5 cm long, enclosed by a loose, tubular, slightly inflated sheath below the middle, with 2 other sheaths at the base. **Leaf** pendent, coriaceous, suffused with purple, narrowly ovate, acute, 8-10.5 cm long, 1.7-2.2 cm wide, cuneate into the sessile base. **Inflorescence** a pendent, simultaneously several-flowered raceme, ca. 3 cm long including the peduncle ca. 0.5 cm long, borne from the base of the leaf, subtended by a spathe 6 mm long; floral bracts infundibular, 2.5 mm long; pedicels 1-1.5 mm long, enclosed within the bract; ovary cellular-glandular, 1-1.5 mm long; **sepals** finely mottled rose-purple, whitish toward the base, fleshy carinate, glabrous externally, sparsely pubescent within, the dorsal sepal ovate, acute, 7 mm long, 2 mm wide, 3-veined, the lateral sepals ovate, acute, 7.5 mm long, 1.9 mm wide, connate 3 mm; **petals** translucent white, spathulate, shortly unguiculate, subacute, minutely denticulate, 2.2 mm long, 1 mm wide, 1-veined; **lip** purple, trilobed, 3.8 mm long, 1 mm wide (1.8 mm wide across the expanded lobes), the middle lobe ovate, subacute, erose, minutely subverrucose, the basal lobes below the middle, erect, broadly rounded, the disc with a pair of minutely verricose calli near the middle, the base truncate, concave above a transverse callus; **column** semiterete, winged above the lower third, 2 mm long, the foot 1.5 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Morona-Santiago**: north of Gualaquiza, alt. 800 m, collected by J. Portilla, cultivated at Gualaceo, Nov. 1999, *A. Hirtz 7132* (Holotype: MO), C. Luer illustr. 19365; cultivated at Ecuagenera, Gualaceo, 5 Mar, 2001, *C. Luer 19685* (MO).

This species, known only from the original collection, is apparently rare and endemic in southeastern Ecuador. It is characterized by the pendent habit with the ramicaul, clad with a loose sheath, that is shorter than the narrowly ovate leaf. The raceme is congested and simultaneously flowered, about half the length of the leaf. The sepals are fleshy carinate, narrow and acute; the petals are minutely denticulate; and the lip is three-lobed with the lobes erect, below the middle and rounded. The base of the lip is concave above a transverse callus.

Pleurothallis decipiens Ames & C.Schweinf., Sched. Orch. 8: 26, 1925.

Ety.: From the Latin *decipiens*, "deceiving," alluding to a mistaken belief that the plant strongly suggested *P. cachensis* Ames or *P. verecunda* Schltr.

Syn.: *Pleurothallis pterocaulis* L.O.Williams, Ann. Missouri Bot. Gard. 27: 280, 1940.
Ety.: From the Greek *pterocaulos*, "winged stem," referring to the ramicaul.

Syn.: *Acianthera decipiens* (Ames & C.Schweinf.) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant medium in size, epiphytic, shortly repent with the rhizome stout, 0.5-2 cm long between ramicauls; roots slender. Ramicauls ascending to erect, 5-20 cm long, terete, longitudinally sulcate, with a tubular sheath on the lower quarter, and 2-3 tubular sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical, acute to subacute, 7-13 cm long, 1.5-3 cm wide, with the base cuneate, sessile. **Inflorescence** a congested, simultaneously few-flowered raceme, 1.5-3 cm long including the peduncle 0.5-1 cm long, subtended by a spathe ca. 1 cm long, from the apex of the ramicaul at the base of the leaf; floral bracts 3-4 mm long; pedicels 1.5-2 mm long; ovary 1.5-2 mm long; **sepals** dull yellow, variously suffused with purple or brown, variously verrucose externally, verrucose above the middle within, the dorsal sepal oblong-obovate, obtuse, 7-8 mm long, 2.5-3 mm wide, 3-veined, the lateral sepals connate into an elliptical synsepal, 6-8 mm long, 6 mm wide, 8 mm wide expanded, 6-veined, the apex bifid with the tips obtuse, concave at the base, with the sides above the middle reflexed; **petals** translucent, elliptical-obovate, obtuse, finely serrate above the middle, 2.5-3 mm long, 1.75-2 mm wide, 1-veined; **lip** orange, suffused with purple, thick, oblong-subtrilobed, 4 mm long, 1.75-2 mm wide, the apex rounded, minutely subserrate, the lateral lobes below the middle, erect, broadly rounded, more or less minutely denticulate, the disc shallowly channeled between a pair of parallel, verrucose calli on the middle third, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** semiterete, shallowly winged, minutely denticulate at the apex, 2.5 mm long, the foot thick, 1.5 mm long, the anther, rostellum and stigma ventral.

COSTA RICA: **Guanacaste**: Arenal, alt. 600 m, 13 July 1923, *J. Valerio 68* (Holotype: US; Isotype: AMES); Questa de Quebrada honda between Río Viris and Naranjo, ca. 1869, *A. Endres 500, 550* (W). **Heredia**: La Virgen del Socorro, alt. 700 m, 15 Apr. 1979, *C. Todzia 567* (CR). **Limón**: Talamanca, Bratsi, Amburi, Alto Lari, Río Lari, alt. 350 m, 28 Feb. 1992, *G. Herrera 5110* (CR, MO).
PANAMA: **Coclé**: vicinity of El Valle, alt. 600-800 m, 8 Dec. 1938, *P.H. Allen 1239* (holotype of *P. pterocaulis*: MO; isotype: AMES); hills above El Valle de Anton, alt. 1000 m, 2 Sept. 1976, *C. Luer & H. Butcher 1124, 1125* (SEL). **Panama**: Cerro Campana, Sept. 1976, fl. cultivated 24 Oct. 1976, *R.L. Dressler s.n.* (SEL).
COLOMBIA: **Valle del Cauca**: along branch od Río Cali, west of confluence of Río Pichindecito with Río Pichindé, alt. 1580-1650 m, 7 Nov. 1944, *J. Cuatrecasas 18770* (AMES).
VENEZUELA: without locality, Dec. 1968, *G.C.K. Dunsterville 1093.*
ECUADOR: without collection data, cultivated at J & L Orchids, 25 Nov. 1976, *J. Kuhn s.n.* (SEL). **Imbabura**: Selva Alegre, alt. 1450 m, *A. Hirtz 4243* (MO), C. Luer illustr. 16229.

Relatively frequent in Costa Rica and Panama, this species occurs sparingly along the western coast of Colombia and Ecuador. It is characterized by a terete, longitudinally channeled ramicaul; a thick, erect, elliptical leaf; and a short, congested raceme of fleshy flowers. The sepals are variously warty externally and internally. The sides of the lateral sepals are reflexed above the middle exposing the verrucose, interior surface. The petals are minutely fringed, and the lip is similar to most of its realtives with a pair of thick calli and small marginal lobes below the middle.

Pleurothallis decurrens Poepp. & Endl., Nov. Gen. Sp. 1: 48, 1836.

Ety.: From the Latin *decurrens*, "decurrent," referring to the leaves decurrent on the ramicaul.

Syn.: *Humboldtia decurrens* (Poepp. & Endl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Acianthera decurrens* (Poepp. & Endl.) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant large, epiphytic, shortly repent with the rhizome thick, 0.5-2 cm long between ramicauls; roots slender. Ramicauls ascending to erect, 10-30 cm long, terete, channeled above, with 2-3 tubular sheaths on the lower quarter. **Leaf** erect to suberect, coriaceous, elliptical, subacute to obtuse, 10-15 cm long, 4-6 cm wide, with the base cuneate, decurrent on the ramicaul 4-5 cm. **Inflorescence** a congested, distichous, simultaneously several-flowered raceme, 4-5 cm long including the peduncle 0.5-1 cm long, borne on top of the center of the leaf, subtended by a spathe 7-8 mm long, from the apex of the ramicaul above the insertion of the leaf; floral bracts 3-5 mm long; pedicels stout, 2 mm long; ovary 4 mm long; **sepals** green, suffused with purple, fleshy, glabrous, the dorsal sepal narrowly oblong-obovate, thickened above the middle, with the margins recurved above the middle, acute, 11-14 mm long, 2.5-3.5 mm wide, 3-veined, the lateral sepals connate into an ovate synsepal, 12-14 mm long, 5.5-6 mm wide, minutely verrucose above the middle, the apex minutely biapiculate; **petals** green, obovate, acute, long-acuminate above the middle, 6 mm long, 1-1.25 mm wide, 1-veined, with a pair of calli within the margins at the middle; **lip** dark purple, thick, elliptical, 4.5-5 mm long, 2 mm wide, the apex obtuse, minutely serrate, the margins below the middle, erect, broadly rounded, the disc shallowly channeled between a pair of parallel calli above the middle, and a thick, longitudinal callus below the middle becoming tall at the base, the base truncate, hinged to the column-foot; **column** semiterete, denticulate-winged at the apex, 3.5-4 mm long, the foot thick, 2 mm long, the anther, rostellum and stigma ventral.

PERU: **Huánuco**: Subandean forests, Cuchero, Dec. 1829, *E. Poeppig 1604* (Holotype: W). "Palanda," 21 Dec. 1876, *E. André 4632* (K); Río Huallaga below Río Santo Domingo, alt. 4,000 ft., 3 June 1923, *J.F. Macbride 4252* (AMES, F). **Muña**: 23 May-4 June 1923, *J.F. Macbride 4055* (AMES, F). **Junín**: Huacapistana, alt. 1800-2400 m, 5-8 June 1929, *E.P. Killip & A.C. Smith 24221* (AMES, US). **Pasco**: west of Oxapampa, Chontabamba, alt, 2000 m, 29 Dec, 1983, *R. Foster, M. Chanco & J. Alban 7631* (MO). **Amazonas**: Chachapoyas, between Ingenio and Pomacochas, alt. 1700 m, *A. López, A. Segástegui & V. Collantes 4282* (AMES, HUT); Chachapoyas, between Pomacochas and Río Utcubamba, road to La Rioja, alt. 1750 m, 9 Oct. 1964, *P.C. Hutchison & J.K. Wright 6841* (AMES, UC).
ECUADOR: **Napo**: north of Baeza, alt. 2000 m, 10 Aug. 1978, *C. Luer, J. Luer & A. Hirtz 3237* (MO). **Loja**: without specific locality, ca. 1876, *E. André s.n.* (K). **Zamora-Chinchipe**: east of Valladolid, Loyola, alt. ca. 2200 m, cultivated at Ecuagenera, Gualaceo, 5 Mar, 2001, *C. Luer 19691* (MO).
COLOMBIA: **Antioquia**: Salgar, between Salgar and El Dauro, near border of Chocó, alt. 1830 m, 24 Jan. 1990, *T.B. Croat 69890* (MO). **Cundinamarca**: region of Sumapaz, between Santa Rosa and Santo Domingo, alt. 2890 m, 19 Feb. 1997, *J. Betancur, P. Franco & A. Neira 7018* (COL, MO).

This species is uncommon in the Andes of southern Ecuador and northern Peru. It is characterized by the large, leathery leaf that is deeply decurrent on a terete, sulcate ramicaul. The raceme emerges about the middle of the blade, and, although short, it reaches nearly to the apex. The sepals are fleshy; the petals are bicallous near the middle and long-acuminate above the middle; and the lip is bicallous above the middle with a tall, thick, midline callus at the base.

Pleurothallis deserta Luer & R.Vásquez, Rev. Soc. Bot. Bol. 2: 139, 1999.

Ety.: From the Latin *desertus*, "abandoned," referring to the road where the species was discovered.

Plant large, epiphytic, shortly repent, the rhizome 0.5 cm thick, 1-2 cm between ramicauls; roots slender. Ramicauls stout, erect, terete, 20-30 cm long, with a tubular sheath on the lower half and 2-3 sheaths at the base. **Leaf** spreading to suberect, coriaceous, ovate, acute, 12-17 cm long, 6-7.5 cm wide, rounded at the base, sessile. **Inflorescence** a simultaneously several-flowered raceme, 5-6 cm long including the peduncle 1-2 cm long, borne on top of the leaf, subtended by a fugacious spathe at the base of the leaf; floral bracts tubular, 4 mm long; pedicels 1 mm thick, 1 mm long; ovary 4-6 mm long; **sepals** fleshy, the dorsal sepal green, narrowly linear-ovate with revolute margins above the basal third, acute, 13 mm long, 2 mm wide, 3-veined, the lateral sepals green with 3 thin, purple veins, connate into an ovate, acute, shortly bifid lamina with apiculate apices, 12.5 mm long, 5.5 mm wide, 6-veined; **petals** translucent with purple veins, ovate, acute, minutely denticulate-lacerate, 5 mm long, 1.75 mm wide, 3-veined, the veins thickened with the lower vein minutely denticulate; **lip** dark purple, thick, oblong, obscurely 3-lobed, 4.5 mm long, 2.4 mm wide, the apex broadly rounded, denticulate-erose, the sides (or lateral lobes) below the middle obtuse, erect, the disc shallowly sulcate, with a small, circular cavity at the base, the base thick, rounded, delicately hinged beneath to the undersurface of the tip of the column-foot; **column** longitudinally winged, 3 mm long, denticulate at the apex, the foot thick, 2 mm long, the anther, rostellum and stigma ventral.

BOLIVIA: **Cochabamba**: Chapare, epiphytic along the old, abandoned road from Villa Tunari to Cochabamba, alt. 1250 m, 30 Jan. 1997, *C. Luer, J. Luer, R. Vásquez. D. Ric & W. Teague 18322* (Holotype: MO).
ECUADOR: *Morona-Santiago*: near Sinai, alt. 1200 m, cultivated at Ecuagenera, Gualaceo, Apr. 2000, *C. Luer 19403* (MO); near Pangui, alt. ca. 1000 m, cultivated at Ecuagenera, Gualaceo, 7 Mar, 2001, *C. Luer 19851* (MO); without locality, cultivated at Ecuagenera, Gualaceo, Mar, 2001, *C. Luer 19686* (MO).

This uncommon species is known from both central Bolivia and southeastern Ecuador, the collections differing insignificantly. It is distinguished by a large habit with a thick, shortly repent rhizome. Tall, stout ramicauls bear a large, ovate, leathery leaf. The raceme arises at the base of the leaf and lies on the dorsum. The sepals are green with thin, purple veins on the synsepals. The petals are acute and finely fimbriate. The lip is thick with a rounded, minutely fimbriated margin. As with *P. decurrens*, a thick, longitudinal callus ends at the base.

Pleurothallis discophylla Luer & Carnevali, Novon 3: 158, 1993.

Ety.: From the Greek *discophyllos*, "round-leaved," referring to the broad, flat leaves.

Plant medium to large in size, epiphytic, shortly repent, the rhizome stout, 0.5-3 cm long between ramicauls; roots slender. Ramicauls erect, 6-12 cm long, sharply 3-winged, slightly broader toward the leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** spreading, coriaceous, broadly elliptical to suborbicular, obtuse, 4-7 cm long, 3-5 cm wide, sessile with the base more or less cordate. **Inflorescence** a fascicle of peduncles, successively single-flowered, borne on top of the leaf, subtended by a spathe 5-7 mm long, from the apex of the ramicaul; peduncles 5 mm long; floral bract 3 mm long; pedicel 3 mm long; ovary cellular-glandular, 2.5 mm long; **sepals** yellow to orange, glabrous, the dorsal sepal linear-obovate, obtuse, thickened and subverrucose within toward the apex, 10-11.5 mm long, 3 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals connate into an elliptical, bifid synsepal, 9-10 mm long, 7 mm wide, 6-veined, the apex shallowly bifid with the tips acute and apiculate; **petals** translucent, elliptical-obovate, obtuse, minutely serrulate, 3 mm long, 1.5 mm wide, with the vein thickened externally, ending in a minute apiculum; **lip** yellow or orange, obovate-pyriform, 5 mm long, 3.5 mm wide, the apex broadly rounded, entire, thin, smooth, the margins above the base erect, rounded, the disc minutely spiculate near the middle, with a pair of parallel, subverrucose calli on the middle third, the base thickened, truncate, hinged to the tip of the column-foot; **column** semiterete, winged above the middle, 3 mm long, minutely toothed at the apex, the foot 2 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Morona-Santiago**: epiphytic in tall forest along Río Upano north of Macas, alt. 1100 m, 15 Jan. 1989 *C. Luer, J. Luer, P. Jesup. A. Jesup, A. Hirtz & S. Ortega 13927* (Holotype: MO). Misión Bomboiza near Gualaquiza, alt. 700-800 m, 2 Oct. 1967, *B. Sparre 19247* (S). **Napo**: Arajuno, Puerto Misahualli, alt. ca. 500 m, 1981, *A. Suarez & C. Lindberg de Suarez 0027* (MO); La Cruz, downstream from Misahualli, alt. 400 m, collected by C. & A. Suarez, flowered in cultivation, 29 Mar. 1984, *C. Luer 9784* (MO); between Mendez and Morona, alt. 700 m, 22 Nov. 1989, *C.H. Dodson, N. Williams, E. Hagsater & M. Whitten 18027* (MO).
PERU: **Amazonas**: Río Cenepa, vicinity of Huampami, alt. 200-250 m, 1 Aug. 1978, *Kujikat 94* (MO). **San Martín**: Mariscal Cáceres, Tocache Nueve, below Puerto Pizana, 1 June 1971, *J. Schunke 4952* (AMES, F); same area, alt. 350 m, 3 June 1974, *J. Schunke 6891* (AMES, F). **Loreto**: Maynas, Río Nanay, Caseria Mishana, southwest of Iquitos, 13 Aug. 1980, *R.B. Foster 4436* (MO); Mishana, alt. 130 m, 21 July 1984, *Vázquez. Jaramillo & Criollo 5305* (MO); Distrito Iquitos, Carretera Quisto Cocha-Varillal, alt. 130 m, 24 July 1984, *S. MacDaniel & M. Rimachi 27836* (MO).
BOLIVIA: **Cochabamba**: epiphytic in seasonally dry forest, Bulo-bulo, west of Yapacaní, alt. 300 m, 22 Aug. 1991, *C. Luer, J. Luer, R. Vásquez & D. Ric 15343* (MO).
VENEZUELA: **Amazonas**: Atabapo, slopes of Cerro Marahuaca, "Sima" area, alt. 1200 m, 19 Oct. 1988, *R. Liesner 25077* (MO, VEN); Cerro Marahuaca, Sima Camp, alt. 1140 m, 24 Feb. 1985, *J.A. Steyermark & B. Holst 130474, 130657* (MO, VEN); Casiquiare, flooded forest along uppermost Río Yatua, alt. 100-140 m, 7-8 Dec. 1953, *B. Maguire, J.J. Wurdack & G.S. Bunting 36730, 36763, 37430* (AMES, NY); near river at Caño Pato, alt. 150 m, Dec. 1965, *G.C.K. Dunsterville & E. Dunsterville 966* (AMES, VEN); Río Negro, between Caño Temblador and Hauchica, alt. 120 m, 19 Nov. 1977, *R. Liesner 3672* (MO, VEN); Caño, northeast of San Carlos de Río Negro, alt. 120 m, 15 Apr. 1979, *R. Liesner 6659* (MO, VEN).
BRAZIL: rivula Maianaka, river Pacisnoni, Feb. 1854, *R. Spruce 2465* (K).

This species is closely allied to the frequent *P. casapensis*, but *P. discophylla* is found in warm forests at altitudes below 1100 meters above sea level. It is distin-

guished by the creeping rhizome; erect, sharply triquetrous ramicauls; spreading suborbicular leaves; and relatively large, yellow to orange flowers produced singly. The dorsal sepal is erect, thickened and subverrucose toward the apex. The lateral sepals below are connate into a broad, shortly bifid lamina. The petals are minutely serrulate. The lip is pyriform, broadly rounded, dilated and thin above the middle with smooth margins and surface. Above the base the margins are erect. A pair of subverrucose calli are present below the middle of the disc where the surface is minutely spiculate.

An illustration of this species from lowland Amazonian Venezuela was misidentified as *P. coffeicola* in *Venezuelan Orchids Illustrated*. *Pleurothallis coffeicola* is a smaller plant that produces more than one flower and occurs at a higher altitude. The latter is undoubtedly conspecific with *P. casapensis*, which can never be proved because the type was destroyed in 1945 at Berlin.

Pleurothallis ellipsophylla L.O.Williams, Ann. Missouri Bot. Gard. 29: 344, 1942.

Ety.: From the Greek *ellipsophyllon*, "elliptical leaf," referring to the leaf.

Syn.: *Acianthera ellipsophylla* (L.O.Williams) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant medium in size, epiphytic, shortly repent, the rhizome stout, 1-1.5 cm between ramicauls; roots slender. Ramicauls stout, erect, terete, 5-8 cm long, with a 2-3 tubular sheaths on the lower quarter. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 5-9 cm long, 2.5-3.5 cm wide, broadly cuneate at the base, sessile. **Inflorescence** a distichous, simultaneously several-flowered raceme, 2-3 cm long including the peduncle 1 cm long, subtended by a spathe 6-7 mm long, at the base of the leaf; floral bracts 5 mm long; pedicels 3 mm long; ovary minutely pubescent, 2-3 mm long; **sepals** light green, fleshy, the dorsal sepal narrowly obovate, acute, apiculate, 14 mm long, 2.5 mm wide, 3-veined, the lateral sepals connate into a narrowly ovate, acute, minutely biapiculate lamina, 14 mm long, 5.5 mm wide, 6-veined; **petals** translucent pale green, narrowly elliptical-ovate, acute, acuminate, minutely denticulate, 7 mm long, 1.5 mm wide, 1-veined; **lip** pale yellow-green, thick, narrowly elliptical-oblong, 5 mm long, 1.5 mm wide, the apex acute, minutely verrucose and denticulate-erose, the sides low and erect below the middle, the disc shallowly sulcate between a pair of low parallel calli on the middle third, the base truncate, minutely bilobed at the angles, hinged to the column-foot; **column** narrowly longitudinally winged, 4 mm long, denticulate at the apex, the foot thick, 2 mm long, the anther, rostellum and stigma ventral.

PANAMA: **Bocas del Toro**: Isla Colón, southwest of Bocas at Maccaw Hill, alt. 0-125 m, 25 Aug. 1940, *H. von Wedel 560* (Holotype: AMES; Isotype: BM); same area, 29 Mar. 1940, *H. von Wedel 65* (MO); Río Cricamola, between Finca St. Louis and Konkintoë, alt. 10-50 m, 12 Aug. 1938, *R.E. Woodson, P.H. Allen & R.J. Seibert 1884* (AMES, MO); . **Panama**: Cerro Campana, 14 Jan. 1972, *R.L. Dressler 4153* (SEL); along the Llano-Carti road, alt. ca. 350 m, 3 Mar. 1976, cultivated 18 Sept. 1976, *C. Luer, J. Luer, P. Taylor & R.L. Dressler 1081* (SEL). **San Blas**: trail on Llano-Carti road, alt. 350 m, 27 Jan. 1986, *G. McPherson & M. Merello 8191* (SEL).
COSTA RICA: **Limon**: Refugio Gandoca-Manzanillo, along Río Gandoca, alt. 0-5 m, 23 Jan. 1987, *M. Grayum et al. 8055* (MO).

This species is apparently restricted to Panama where it is uncommon. It is characterized by a stout, creeping rhizome with terete ramicauls and elliptical, sessile leaves. The raceme is short and several-flowered. The flowers are light green, the sepals are narrow; the petals are narrow and acuminate; and the lip is narrow and acute with low calli near the middle.

Pleurothallis erebatensis Carnevali & G.A.Romero, Novon 3: 18, 1993.

Ety.: Named for Santa María de Erebato, Bolívar, Venezuela, where the species was collected.

Syn.: *Pleurothallis barthelemyi* Luer, Adansonia 16(2-4): 231, 1995.

Ety.: Named for Daniel Barthelemy of the Botanical Institute, Montpellier, France, co-collector of this species.

Syn.: *Pleurothallis purpurascens* Luer & Hirtz, Lindleyana 11: 181, 1996.

Ety.: From the Latin *purpurascens*, "becoming purple," referring to the vegetative and floral parts.

Syn.: *Pleurothallis nanella* Luer & Hirtz, Orquideología 22: 268, 2003.

Ety.: From the Latin *nanellus*, "a dwarf," referring to the small habit for the subgenus.

Plant small to medium in zize, epiphytic, caespitose to shortly repent; roots slender. Ramicauls slender, erect or suberect, 1-7 cm long, with a tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, thickly coriaceous, narrowly elliptical, acute, 3-11 cm long, 0.4-1.7 cm wide, narrowly cuneate below into the sessile base. **Inflorescence** a congested, few-flowered raceme, 2-4 flowers open simultaneously, ca. 1 cm long including the peduncle 1-5 mm long, from a spathe 2-5 mm long at the base of the leaf; floral bracts 2 mm long; pedicels 1-2 mm long; ovary 1-1.5 mm long; **sepals** purple, fleshy, glabrous, subcarinate, the dorsal sepal oblong to linear-oblong, thickened toward the apex, acute, 5-6.5 mm long, 1.5 mm wide, 3-veined, essentially free from the lateral sepals, the lateral sepals lightly connate (easily separating) to above the middle into a bifid lamina, 5-6 mm long, 3-4.5 mm wide, with acute apices, forming at the base a mentum below the column-foot; **petals** glabrous, linear-obovate, acute, minutely denticulate, 2.3-3 long, 0.75-1 mm wide, 1-veined; **lip** purple, thick, oblong-obovate, 3-4 mm long, 1-1.5 mm wide, the apex broadly rounded, minutely papillose and minutely denticulate, the sides erect and broadly rounded at and above the middle, the disc with a low pair of denticulate carina within the sides above the middle, the base narrowed, subuncuiculate, truncate, with a minute lobule at the angles, hinged to the base of the column; **column** stout, terete, 1.5-2 mm long, the apex short, minutely irregular, the anther and stigma ventral, the foot stout, less than 1 mm long.

VENEZUELA: **Bolívar**: Munic. Sucre, around Santa María de Erebato, alt. 360 m, Feb. 1989, *E. Sanoja 2554* (Holotype: PORT; Isotypes MO, VEN); same area, alt. 400 m, Mar. 1974, *G.C.K. Dunsterville & E. Dunsterville 1311* (AMES). **Táchira**: east of La Fundación, Repressa Dorado, alt. 600-1000 m, 10-13 Mar. 1981, *R. Liesner & Gonzáles 10400* (MO, VEN).
GUYANA: Basin of Essequibo River, near mouth of Onoro Creek, 15-24 Dec. 1937, *A.C. Smith 2782* (AMES, NY).
FRENCH GUYANA: epiphytic in tall, rain forest, Piste St. Elie, alt. 100 m, 13 May 1986, *C. Luer, J. Luer & D. Barthelemy 12241* (holotype of *P. barthelemyi*: MO).
ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, epiphytic in forest along the new road between Mendez and Morona, alt. 950 m, 18 Jan. 1989, *C. Luer, J. Luer, P. Jesup, A. Jesup & A. Hirtz 13988* (holotype of *P. purpurascens*: MO); collected near Pangui, alt. 1000 m, cultivated at Ecuagenera, Gualaceo, Ecuador, 2 Feb. 2002 *A. Hirtz 8179* (MO), C. Luer illustr. 20223.

As treated here, this species is variable and widely distributed at low altitudes in the margin of the Amazonian basin from Ecuador to the Guianas. Differences exist among all the basically similar collections cited above, but they are grouped here as representing geographical variations. Allied to sympatric *P. kegelii*, this species is distinguished from the latter by a very short, congested, few-flowered raceme; a synsepal with a prominent mentum below the column-foot; and an obovate lip.

Pleurothallis erythrogramma Luer & Carnevali, Novon 3: 160, 1993.

Ety.: From the Greek *erythrogramme*, "red-line," referring to the stripes on the synsepal.

Plant medium in size, epiphytic, shortly repent, the rhizome stout, 0.5-1 cm long between ramicauls; roots slender. Ramicauls erect, 6-8 cm long, sharply 3-winged, slightly broader toward the leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** spreading, coriaceous, broadly elliptical to suborbicular, obtuse, 3.5 cm long and 3.5 cm wide to 4.5 cm long and 4.5 cm wide, sessile with the base cordate. **Inflorescence** a fascicle of successive, single-flowered peduncles, borne on top of the leaf, subtended a broad spathe 2-3 mm long and broad, from the apex of the ramicaul; peduncles 1-2 mm long; floral bract 4 mm long; pedicel 6 mm long; ovary 2.5 mm long; **sepals** fleshy, glabrous, the dorsal sepal linear, acute, thickened at the apex, 13.5 mm long, 2 mm wide, 3-veined, free from the lateral sepals, the lateral sepals yellow, prominently veined in red, connate into an ovate, acute synsepal, 10 mm long, 6.5 mm wide, 6-veined, the apex shortly bifid with the tips acute and apiculate; **petals** translucent, obovate, acute, minutely serrate, 3 mm long, 1 mm wide, 1-veined; **lip** red, elliptical, 5.5 mm long, 2.5 mm wide, the apex narrowly obtuse, denticulate, the margins in the lower third broadly rounded, the disc with a pair of verrucose calli within the margins of the middle third, the base narrowly truncate, minutely bilobulate, hinged to the tip of the column-foot; **column** semiterete, winged above the middle, 3.5 mm long, minutely toothed at the apex, the foot 2 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Napo**: epiphytic in trees along Río Cascales east of Lumbaqui, alt. 450 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11766* (Holotype: MO). **Morona-Santiago**: between Misión Bomboiza and Gualaquiza, alt. 850 m, 30 Jan. 1971, *B. MacBryde* 170 (MO).
PERU: **Amazonas**: primary forest south of Aintami, east of Cenepa, alt. 650 ft., 15 July 1974, *B. Berlin 1605* (MO).

This species is uncommon in the lowland forests of eastern Ecuador and Peru. It is one of several species allied to the frequent *P. casapensis*, but *P. erythrogramma*

is found only at low altitudes. It is even more closely allied to *P. discophylla*, also from the same lowlands, but it has unstriped sepals and a spathulate lip.

Pleurothallis erythrogramma is distinguished by the creeping rhizome; erect, sharply triquetrous ramicauls; spreading suborbicular leaves; and a relatively large, single, gaping flower. The erect dorsal sepal is long and narrow; the lateral sepals are connate into an ovate, acute, yellow lamina that is prominently veined in red. The petals are minutely serrulate. The red lip is elliptical and denticulate.

Pleurothallis esmeraldae Luer & Hirtz, Lindleyana 11: 158, 1996.

Ety.: Named for the Province of Esmeraldas where this species was discovered.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-8 cm long, laterally compressed in the upper third, with a thin, tubular on the lower quarter and 1-2 sheaths at the base. **Leaf** erect, rigidly fleshy, coriaceous, narrowly ovate, acute, 3.5-4 cm long, 1-1.3 cm wide, cuneate into the sessile base. **Inflorescence** a simultaneously 3- to 6-flowered raceme, 1.5 cm long including the peduncle ca. 0.5 cm long, borne in the sulcus of the leaf, subtended by a spathe 5 mm long from the apex of the ramicaul; floral bracts 1.5 mm long; pedicels 0.5 mm long; ovary 1 mm long; **sepals** olive green, fleshy, the dorsal sepal obovate with revolute margins above the middle, acute, thickened and verrucose above the middle, 6 mm long, 1.4 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, bifid lamina, 5 mm long, 3 mm wide, 6-veined, verrucose above the middle; **petals** translucent olive green, oblong, acute, minutely denticulate, 2.8 mm long, 0.8 mm wide, 1-veined; **lip** dark purple, thick, ovoid-trilobed, 2.2 mm long, 1.4 mm wide, the apex broadly rounded, denticulate, verrucose, the sides (or lateral lobes) papillose, acute, retrorse, erect, below the middle, the disc with a thick pair of parallel, verrucose carinae on the middle third, the base subtruncate, bilobulate, delicately hinged to the tip of the column-foot; **column** slender, 2 mm long, denticulate at the apex, the foot 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Esmeraldas**: epiphytic in wet forest west of Lita toward San Lorenzo, alt. 750 m, 18 Jan. 1987, *C. Luer, J. Luer, C. Dodson, A. Hirtz & D. Benzing 12358* (Holotype: MO); between Lita and Alto Tambo, alt. 800 m, 15 June 1988, *A. Hirtz 3624* (MO).

This species from the wet forests of lowland, northwestern Ecuador is closely allied to the taxa considered to be variations of *P. lojae*. In several features it varies too far from the usual forms to include it in the complex. It is distinguished by the ramicauls noticeably longer than the stiff, erect, narrowly ovate leaves; acute sepals verrucose within; oblong, acute petals; and a thick, markedly verrucose lip with acute, papillose, retrorse lateral lobes.

Pleurothallis eximia L.O.Williams, Amer. Orch. Soc. Bull. 11: 168, 1942.

Ety.: From the Latin *eximius*, "distinguished or uncommon," apparently regarding the species.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1.5-3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, ovate, acute, 3-4.8 cm long, 1-1.5 cm wide, broadly cuneate into the sessile base. **Inflorescence** a distichous, simultaneously 3- to 6-flowered raceme, 1.5 cm long including the peduncle 0.7-0.8 cm long, subtended by a spathe 5-7 mm long at the base of the leaf; floral bracts 2 mm long; pedicels 0.5 mm long; ovary 1.5 mm long; **sepals** dark purple, fleshy, thickly carinate, the dorsal sepal narrowly elliptical-ovate, acute, 5.5 mm long, 1.5 mm wide, 3-veined, the lateral sepals connate into an ovate, acute, shortly bifid lamina, 5.5 mm long, 5 mm wide expanded, 6-veined, the apices shortly acute, in apposition; **petals** translucent, narrowly oblong, acute, minutely serrate above the middle, 3 mm long, 0.5 mm wide, with the midvein purple; **lip** dark purple, thick, ovate, 4 mm long, 2 mm wide expanded, the margins minutely denticulate, the apex acute, the sides broadly rounded, erect, below the middle, the disc verrucose, the base subunguiculate, truncate, bilobulate, delicately hinged to the tip of the column-foot; **column** slender, 2.5 mm long, dentate at the apex, the foot 1 mm long, the anther, rostellum and stigma ventral.

MEXICO: **Oaxaca**: Valley of Río Capalita, northwest of Pluma Hidalgo, alt. 1000 m, 4 Mar. 1937, *O. Nagel & Juán Gonzales* (Holotype: AMES, Isotype: MO), C. Luer illustr. 17161; Santiago La Galera, road to Miahuatlán, alt. 1450 m, 23 Feb. 1988, *A. Campos & J. Reyes 1448* (AMO, MEXU).

This species is uncommon and apparently restricted to southern Mexico. It is characterized by the small habit with acute, ovate leaves somewhat longer than the ramicaul. The few-flowered raceme is shorter than the leaf. The dark purple sepals are thickly fleshy; the petals are narrowly linear and single-veined; and the lip is ovate and acute with denticulate margins and verrucose disc.

Pleurothallis fockei Lindl., Folia Orch. *Pleurothallis* 23, 1859.

Ety.: Named for Wilhelm Olbers Focke who described this species as *P. tricarinata*.

Syn.: *Pleurothallis tricarinata* Focke, Bot. Zeit. 11: 339, 1853, not Poepp. & Endl. 1838.
Ety.: From the Latin *tricarinatus*, "tricarinate," referring to the sepals.

Syn.: *Humboldtia fockei* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.
Syn.: *Humboldtia tricarinata* (Focke) Kuntze, Rev. Gen. Pl. 2: 668, 1891.
Syn.: *Acianthera fockei* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant medium in size, epiphytic, shortly repent, roots slender. Ramicauls ascending to erect, 7-9 cm long, slender, enclosed above the base by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, sessile, subacute to obtuse, 4-9 cm long, 1.8-2.5 cm wide, cuneate below into the base. **Inflorescence** a congested, few-flowered raceme, ca. 5 mm long, borne by a slender peduncle, 15-20 mm long, subtended by a deciduous spathe ca. 5 mm long, from the apex of the ramicaul at the base of the leaf; floral bract 2 mm long; pedicel 1 mm long; ovary 1.5 mm long; **sepals** yellowish, suffused with purple, glabrous, tall-carinate, the dorsal sepal oblong-ovate, acute, 5-5.5 mm long, 2 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate above the middle into an oblong, bifid synsepal, 6-7 mm long, 4.5 mm wide, with the apices rounded, convex, verrucose; **petals** translucent, narrowly oblong-obovate, acute, minutely serrate above the middle, 4 mm long, 1 mm wide, 1-veined; **lip** dotted with purple, obovate, obtuse, 4 mm long, 3 mm wide, with the margins serrate, the disc minutely verrucose, coarser across the middle than at the apex or base, with a low, rounded callus above the base, the base bilobulate, hinged to the column-foot; **column** slender, semiterete, 3 mm long, long-cucullate at the apex, the foot 1 mm long, the anther, rostellum and stigma ventral.

SURINAME: Paramaribo, 5 Dec. 1852, *W. Focke 39* (iconotype of *P. tricarinata*: colored illustr. at W); Region Pará, Topibo Pass, Sept. 1853, *H. Wullschlaegel 1591* (BR, W).
GUYANA: Basin on Shodikar Creek, tributary of Essequibo, 8-22 Jan. 1938, *A.C. Smith 3018* (AMES).
VENEZUELA: Bolívar: Río Parágua, June 1958, *G.C.K. Dunsterville 460*. **Amazonas:** Near Santa Rosa Amanadona, alt. 120 m, 29 Jan. 1968, *J.G. Wessels Boer 2364* (AMES, CICY); Atababo, Río Cunucunuma, east of Culebra, alt. 210-300 m, 17 Feb. 1985, *R. Liesner 17881* (AMES, MO); Río Regro, Neblina base camp, Río Mawarinuma, alt. 140 m, 11 Feb. 1985, *B.M. Boom & A.L. Weitzman 5738* (AMES, NY); Atures, Santa Rosa de Ucata, alt. 80 m, 19 Apr. 1989, *G.A. Romero, F. Gaunchez & L. Alvarez 1837* (AMES).
GUYANA: basin of Shodikar Creek, Essequibo tributary, Jan. 1938, *A.C. Smith 3018* (AMES, NY).
FRENCH GUYANA: Savane Sarcelle, Région Littorale, 27 Dec. 1996, *O. Tostain 281* (CAY), C. Luer illustr. 18674.

This species is endemic and infrequent in lowland northern South America from Venezuela to Brazil. It was first collected and described as *tricarinata* by Focke whose illustration is at W. The epithet had been used by Poeppig and Endlicher for a Peruvian species, so Lindley renamed Focke's collection *P. fockei*.

Pleurothallis fockei is characterized by an elliptical leaf borne by a ramicaul as long or a little longer. A short, crowded raceme of two or three flowers is borne by a slender peduncle near the middle of the leaf. The sepals are tall-carinate; the sides of the noticeably shorter dorsal sepal are incurved; and the sides of the verrucose synsepal are recurved. The petals are acute and minutely serrate. The lip is broadly obovate, obtuse, serrate and minutely papillose.

A crude illustration of *P. fockei* and an illegible description dated Sept. 1879 with the proposed name *P. myreophylla* by Reichenbach are at W.

Pleurothallis fumioi Hashimoto, J. Jap. Bot. 46: 173, 1971.

Ety.: Named for Dr. Fumio Maekawa of the University of Tokyo, leader of the First Botanical Expedition to the Andes.

Syn.: *Pleurothallis phoxophylla* Luer, Rev. Soc. Bol. Bot. 3: 57, 2001.

Ety.: From the Greek *phoxophyllos*, "pointed leaf," referring to the blade of the leaf.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, triquetrous, 12-15 cm long, with 2 thin, tubular sheaths at the base. **Leaf** erect, coriaceous, very narrowly ovate, acute, 6-8 cm long, 0.8-1 cm wide, gradually narrowed to the sessile base. **Inflorescence** a congested, simultaneously 3- to 4-flowered raceme, ca. 1 mm long including the peduncle ca. 0.3 cm long, from a spathe 5 mm long at the base of the leaf, the apex of the ramicaul; floral bracts 1.5-2 mm long; pedicels 0.5 mm long; ovary minutely short-pubescent, 1.5-2 mm long; **sepals** purple, thickly fleshy, microscopically pubescent externally, tuberculate within above the middle, the dorsal sepal obovate, obtuse, 5 mm long, 2 mm wide, 3-veined, the lateral sepals connate into a suborbicular, obtuse, minutely bifid lamina, 4 mm long, 4 mm wide; **petals** purple, ovate, unguiculate, acute, acuminate, denticulate, 3 mm long, 1 mm wide, 3-veined; **lip** thick, fleshy, oblong-trilobed, 2.25 mm long, 1 mm wide, the apex oblong, rounded, minutely serrulate, the lateral lobes small, erect, rounded, below the middle, the disc shallowly channeled between a pair of parallel calli on the middle third and coalescing at the base, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** stout, 2.75 mm long, broadly winged above the middle, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

PERU: **Puno**: between Quince Mil and Puente Río Inambari, collected by T. Hashimoto & M. Wada, 29 Jan. 1966, flowered in cultivation in Bot. Gard. Univ. of Tokyo, 11 Sept. 1970, *T. Hashimoto s.n.* (Holotype: TI); Carabaya, Puente Inambari, toward Madre de Dios, alt. 520 m, 8 Dec. 1966, *C. Vargas 18426* (holotype of *P. phoxophylla*: AMES), C. Luer illustr. 19289. **Madre de Dios**: Tomtopata, alt. 520 m, 8 Dec. 1966 *C. Vargas 18425* (CUZ).

This species is apparently endemic in lowland, southeastern Peru. It is most similar to *P. pantasmi*, which is widely distributed in Central America as well as Ecuador. *Pleurothallis fumioi* is distinguished by a very narrow leaf borne by a slender, triquetrous ramicaul, instead of a winged ramicaul with a wider leaf. A few, thickly fleshy flowers, basically similar to those of *P. pantasmi*, are borne in a short, crowded raceme. The petals of *P. fumioi* are unguiculate and acuminate, and the calli and lobes of the lip are smaller, and the callus is not cleft centrally.

Pleurothallis garciae Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 70: 173, 1999.

Ety.: Named for Carlos Garcia E. who collected this species.

Syn.: *Acianthera garciae* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant medium in size, epiphytic, long-repent; rhizome slender, 1.5-2.5 cm long between ramicauls; roots slender. Ramicauls slender, triquetrous, ascending, suberect, 2-4 cm long, with a loose, tubular sheath at the base. **Leaf** more or less spreading, coriaceous, ovate, subacute to obtuse, 2.5-5 cm long, 2-3.5 cm wide, shallowly cordate at the sessile base. **Inflorescence** a single flower, borne in a fascicle from a spathe 4 mm long at the base of the leaf; pedicel 6-7 mm long; floral bract 6 mm long; ovary 2 mm long; **sepals** white, striped and marked with purple, fleshy, the dorsal sepal glabrous, oblong-spathulate, obtuse, thickened toward the apex, 8-11.5 mm long, 3 mm wide, 3-veined, the lateral sepals connate into an ovate, concave, obtuse, minutely bifid synsepal, 7-8 mm long, 6.5-7 mm wide, 6-veined, with a well-defined convex, pubescent area occupying the apical half; **petals** translucent, with a purple midvein, elliptical, acute, minutely serrate above the middle, 3.5 mm long, 1.5 mm wide, 1-veined; **lip** ovoid-trilobed, cream, suffused with pink, 4-4.5 mm long, 2.5 mm wide, the apex subacute or obtuse, minutely denticulate, with erect, subacute lateral lobes on the basal third, the disc with a pair of carinae on the middle third, thickened above the base, truncate, minutely lobed at the corners, hinged to the tip of the column-foot; **column** slender, 3 mm long, denticulate at the apex, the foot 2 mm long, the anther, rostellum and stigma ventral.

VENEZUELA: **Carabobo**: Río San Gián, south of Borburata, alt. 350-500 m, 7-8 Aug. 1965, *J.A. Steyermark 94334* (Holotype: AMES; Isotype: VEN). **Falcón**: Sierra de San Luis, rain forest near Curimagua, Dec. 1959, collected by C. Garcia, *G.C.K. Dunsterville 536* (SEL, MO). Without locality, sterile, 1854-56, *A. Fendler 2445* (K).

Probably first collected by Fendler, this long-repent species is apparently endemic in the coastal mountains of northwestern Venezuela. It is related to the

more widely distributed *P. yauaperyensis*. Dunsterville's illustration in *Venezuelan Orchids Illustrated* was misidentified as *P. consimilis*, which is conspecific with *P. yauaperyensis*. This species is distinguished from the latter by broader, shallowly cordate leaves; a larger, solitary flower with a long, spathulate, dorsal sepal; and a synsepal that is convex and pubescent above the middle. The lip is minutely serrate, and the calli are smooth.

Pleurothallis geminicaulina Ames, Sched. Orch. 6: 59, 1923.

Ety.: From the Latin *geminicaulinus*, "twin-stemmed," referring to frequent pairs of ramicauls.
Syn.: *Acianthera geminicaulina* (Ames) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant medium in size, epiphytic, shortly repent, the rhizome 0.5-1.5 cm long between ramicauls; roots slender. Ramicauls slender, erect, terete below, compressed above, often produced in pairs, 3-8 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, thickly coriaceous, suffused with purple, elliptical-ovate, subacute to obtuse, 3-8 cm long, 1.5-2.5 cm wide, cuneate below to the base, sessile. **Inflorescence** a loose, distichous, simultaneously few-flowered raceme, 1.5-2.5 cm long including the peduncle 1-1.5 cm long, subtended by a spathe 5-7 mm long, at the base of the leaf; floral bracts 3 mm long, minutely pubescent; pedicels 2-3 mm long; ovary 1.5-2 mm long, minutely pubescent; **sepals** fleshy, minutely pubescent externally, pale yellow-green, striped and suffused with purple, the dorsal sepal narrowly obovate, acute, apiculate, 9-11 mm long, 2-2.5 mm wide, 3-veined, the lateral sepals connate to the apex into an ovate, acute, minutely biapiculate lamina, 9-10 mm long, 4-5 mm wide, 6-veined; **petals** translucent with purple midvein, elliptical-obovate, obtuse, apiculate, serrate, 5-6 mm long, 2-2.5 mm wide, 1-veined; **lip** purple, thick, elliptical-oblong, obtuse to rounded at the apex, often apiculate, 3.5-4 mm long, 1.5-1.75 mm wide, the sides erect, low, rounded, below the middle the disc shallowly sulcate between callous halves of the lip, lightly verrucose above the middle, the base broadly subunguiculate, truncate, bilobed at the angles, hinged to the column-foot; **column** winged above the middle, 2.5-3 mm long, bidentate at the apex, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

COSTA RICA: **Cartago**: La Union, Turrialva, alt. ca. 3,500 ft., 12 May 1923, *C.H. Lankester 454* (Holotype: AMES); without locality, ca. 1867, *A. Endres 542* (W); Dulce Nombre, alt. 1400 m, 27 Feb. 1924, *P.C. Standley 35894* (AMES); Las Cóncavas, 27 Feb. 1924, *C.H. Lankester s.n.* (AMES); Finca Las Cóncavas, alt. 1200-1300 m, 7-8 Dec. 1925, *P.C. Standley 41457* (AMES); La Fuente, alt. 1200 m, 14 Sept. 1925, *A. Alfaro 185* (AMES).
ECUADOR: **Pichincha**: between Santo Domingo and Chone, alt. 550 m, 10 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 7005* (AAU); near Santo Domingo, cultivated Oct. 1975, H.H. Morgan, *C. Luer 108A* (SEL). **Esmeraldas**: dry woods south of Esmeraldas, alt. 300 m, 13 Sept. 1980, *C. Luer, J. Luer & C.H. Dodson 5445* (SEL); near San Lorenzo, alt. ca. 100 m, cultivated at Ecuagenera, Gualaceo, 7 Mar, 2001, *C. Luer 19807* (MO).

This species was distinguished by Ames for the frequent occurence of ramicauls in pairs while the rhizome is distinctly elongate between other ramicauls. The ramicauls are compressed toward the leaf; the elliptical leaf is thick with the few-flowered raceme less than half its length; the minutely pubescent sepals are acute; the petals are serrate; and the lip is oblong and bicallous.

Pleurothallis granitica G.A.Romero & Luer, Orchid. Venez., ed. 2: 1142, 2000.

Ety.: From the Latin *graniticus*, "granitic," referring to the habitat.

Plant small, epiphytic, repent, the rhizome slender, 1-1.5 cm between ramicauls; roots slender. Ramicauls slender, erect or suberect, 2.5-4 cm long, with a tubular sheath on the lower half and 2-3 other sheaths at the base. **Leaf** erect to pendent, thickly coriaceous, rigid, narrowly elliptical, acute, 4-5.5 cm long, 1-1.2 cm wide, cuneate below into the sessile base. **Inflorescence** a congested, 2- to 3-flowered raceme, 1-1.5 cm long including the peduncle ca. 4 mm long, from a spathe 2 mm long at the base of the leaf; floral bracts close, tubular, 1.5 mm long; pedicels 1-1.5 mm long; ovary 1-1.5 mm long; **sepals** fleshy-carinate, glabrous but with cellular margins, the dorsal sepal narrowly oblong-obovate, obtuse, apiculate, 6 mm long, 1.8 mm wide, 3-veined, connate basally to the lateral sepals, the lateral sepals connate to near the apex into an ovoid, concave synsepal, 6 mm long, 3.5 mm wide unexpanded, minutely bifid with acute tips at the apex, with a broad, rounded mentum below the middle below the column-foot; **petals** elliptical, obtuse, microscopically denticulate, 2.75 mm long, 1.25 mm wide, 1-veined; **lip** purple, thick, oblong, with low, rounded, marginal lobes below the middle, 3.5 mm long, 1.5 mm wide,

the apex obtuse, minutely verrucose and denticulate, the disc with a pair of thick calli on the middle third, the base minutely biauriculate at the corners, hinged to the base of the column; **column** stout, terete, 2 mm long, the apex obtusely lobed, the anther and stigma ventral, the foot stout, 1.5 mm long.

VENEZUELA: **Amazonas**: Atures, between Puerto Ayacucho and Samariapo, entrance to Garcitas, 17 Aug. 1997, *G.A. Romero 3080* (Holotype: VEN; Isotype AMES), C. Luer illustr. 18588; Río Cataniapo, lithophytic, near Puerto Ayacucho, alt. ca. 100 m, Dec. 1965, *G.C.K. Dunsterville 970*.

This species, closely allied to the widely distributed *P. angustifolia*, is also characterized by a slender, creeping rhizome and slender, erect to pendent ramicauls and leaves. The raceme is short and few-flowered; the dorsal sepal is obtuse and apiculate; the synsepal is deeply scaphoid with a broad, rounded mentum filling the basal half. The petals are microscopically serrate. The lip is thick with a pair of calli on the middle third, and low, rounded marginal lobes below the middle.

Pleurothallis harpophylla Rchb.f., Bonplandia 3: 72, 1855.

Ety.: From the Greek *harpophyllos*, "sickle-shaped leaved," referring to the compressed leaves.

Syn.: *Pleurothallis harpophylla* var. *atropurpurea* Rchb.f., Otia Bot. Hamburgensis 2: 93, 1881.
Syn.: *Humboldtia harpophylla* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Plant small to medium in size, epiphytic, repent, the rhizome stout, 0.5-1.5 cm long between ramicauls; roots slender. Ramicauls ascending to erect, 2.5-5 cm long, compressed above the middle, with 2-3 tubular sheaths at the base. **Leaf** erect, conduplicate, coriaceous, elliptical, subacute to obtuse, 2-4.5 cm long, 1-2.2 cm wide, with the base sessile, broadly cuneate. **Inflorescence** a congested, simultaneously 4- to 6-flowered raceme, 1.7 cm long including the peduncle 0.5 cm long, borne in the sulcus of the dorsum of the leaf, subtended by a spathe less than 5 mm long, at the base of the leaf; floral bracts tubular, 2 mm long; pedicels 1-1.5 mm long; ovary, 1.75 mm long; **sepals** fleshy, described as yellow, glabrous, the dorsal sepal narrowly elliptical, obtuse, 6-7 mm long, 2 mm wide, 3-veined, the lateral sepals connate to near the apex into an elliptical synsepal, 5.5 mm long, 3 mm wide, 6-veined, the apex bifid with the tips acute; **petals** translucent, elliptical, obtuse, coarsely fimbriate, 2-2.5 mm long, 0.5 mm wide, 1-veined; **lip** thick, oblong-subtrilobed, 2 mm long, 1 mm wide, rounded at the apex, smooth, the lateral lobes below the middle, erect, broadly rounded, with smooth, intramural calli that continue forward toward the apex, the disc with a flat, longitudinal callus from the base to near the apex, sulcate on either side between the central and marginal calli, the base thin, narrowly truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** semiterete, shallowly winged, minutely denticulate at the apex, 2 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

COLOMBIA: **Santander**: old dept. of Ocaña, Aspasica, alt. 6,000 ft., *H. Wagener 549* (Holotype: W; Isotype: K), C. Luer illustr. 19018; without specific locality, *Garcia-Barraga 11557* (AMES), C. Luer illustr. 19217.

This species is apparently endemic and uncommon in the Eastern Cordillera of Colombia. The type-collection at W is mounted on a sheet with a Venezuelan collection by Fendler with an illustration. The latter, *P. yauaperyensis*, was subsequently described as *P. consimilis* by Ames.

The leaves of the type-specimen of *P. harpophylla* are folded and falcate in appearance in the dried state. The ramicauls are compressed. The raceme from the base of the leaf produced six, reportedly yellow, flowers. The erect, narrow, dorsal sepal is distinctly longer than the synsepal, as seen in *P. miqueliana*. The synsepal is minutely bifid; the petals are deeply lacerate; and the lip is oblong, obtuse and glabrous, with a central, longitudinal callus and thick, intramural calli occupying both lateral margins.

Pleurothallis heliconioides Luer & R.Vásquez, Phytologia 46: 366, 1980.

Ety.: Named for the resemblance of the pendent raceme to a species of *Heliconia*.

Syn.: *Acianthera heliconioides* (Luer & R.Vásquez) Pridgeon & M.W.Chase, Lindleyana 16: 244, 2001.

Plant medium to large in size, epiphytic, shortly repent to caespitose; roots slender. Ramicauls stout, terete, erect, 6-13 cm long, with a tubular sheath below the middle and 1-2 other sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical, acute, 9-12 cm long, 2.5-3.5 cm wide, the base broadly cuneate or rounded, sessile. **Inflorescence** a pendent, lax, flaccid, distichous, simultaneously several-flowered raceme, 20-23 cm long including the peduncle 7 cm long, from a spathe 1.5-2 cm long, at the

base of the leaf; floral bracts tubular, 5-6 mm long; pedicel 1.5 mm long; ovary 2 mm long; **sepals** yellow-orange, suffused with purple below the middle, fleshy, minutely pubescent externally, the dorsal sepal narrowly linear, acute, 31 mm long, 2 mm wide, 3-veined, the lateral sepals connate into a narrowly ovate, acute, minutely bifid synsepal, 22 mm long, 7 mm wide, 6-veined, lightly verrucose, appressed against the rachis; **petals** yellow, narrowly ovate, acute, acuminate, minutely denticulate, 7.5 mm long, 1.5 mm wide, 3-veined; **lip** white, suffused with purple, thick, oblong, obtuse, 4.25 mm long, 2 mm wide, with serrate margins, the sides erect and broadly rounded below the middle, the disc sulcate between callous halves, the base narrowly truncate, minutely lobed at the corners, hinged to the the column-foot; **column** winged above the middle, 3.5 mm long, minutely denticulate at the apex, the foot stout, 1 mm long, the anther, rostellum and stigma ventral.

BOLIVIA: *La Paz*: Sud Yungas, without locality, cultivated in Chulumani by Dino Menato, 1 Feb. 1980, *C. Luer 5041* (Holotype: SEL).

The basic pattern of the flowers is similar to that of *P. lanceana*, but the character of the raceme is distinct. The long, flaccid raceme hangs straight down over the side of the leaf. The synsepals lie appressed to the rachis while the long, narrow, alternating dorsal sepals stand out perpendicularly.

Pleurothallis henrici Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 58, 1921.

Ety.: Named in honor of Heinrich von Eggers who collected this species.

Plant medium in size to large, epiphytic, shortly repent, the rhizomes 0.5-1 cm long between ramicauls; roots slender. Ramicauls slender, erect, terete, 5-12 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, thickly coriaceous, suffused with purple, elliptical, acute, 7-12 cm long, 1.5-2 cm wide, cuneate below to the base, sessile. **Inflorescence** a loose, distichous, simultaneously several-flowered raceme, 4-5.5 cm long including the peduncle 1.5-2 cm long, subtended by a spathe 7-9 mm long, at the base of the leaf; floral bracts 3 mm long with an apiculum; pedicels 1 mm long; ovary 2 mm long; **sepals** dark purple, fleshy, subcarinate, glabrous externally, subverrucose above the middle within, the dorsal sepal oblong-obovate, acute, 7 mm long, 2 mm wide, 3-veined, connate to the laterals for 2.5 mm, the lateral sepals oblong, acute, 7 mm long, 2.5 mm wide, 3-veined, connate 2.5 mm below the middle; **petals** translucent with purple midvein, obovate, subacute, minutely denticulate, 2.25 mm long, 1.8 mm wide, 1-veined; **lip** purple, thick, oblong, obtuse to rounded at the apex, 3.5 mm long, 1.75 mm wide, the sides erect below the apical third, rounded toward the base, the apical third microscopically verrucose, microscopically erose, the disc shallowly sulcate between a converging pair of low calli on the middle third, the base broadly subunguiculate, truncate, bilobed at the angles, hinged to the column-foot; **column** semiterete, 2 mm long, the foot 1.5 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Manabí**: on large trees near El Recreo, near sea level, Feb. 1897, *H. Eggers 15628* (Holotype presumably destroyed at B, Lectotype here designated: K), C. Luer illustr. 16987. **Esmeraldas**: near Concepción, 12 Sept. 1879, *F.C. Lehmann 244* (W). **Los Ríos**: near Babahoya on littoral plain, 7 Dec. 1879, *F.C. Lehmann 588* (W).

This species is apparently endemic in coastal Ecuador where it was collected a few times in the nineteenth century. It is very similar to *P. verecunda* which is distinguished by the acute, retrorse, marginal lobes of the lip. Both species are characterized by a thick, acute, elliptical leaf, and a short, lax, raceme. They, as well as their relatives, grow more or less pendent because of the weight of the leaves.

Pleurothallus heteropetala Luer, Selbyana 3: 118, 1976.

Ety.: From the Greek *heteropetalon*, "a different petal," referring to unequal halves of the petals.

Syn.: *Acianthera heteropetala* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 244, 2001.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, terete, 2-4 cm long, enclosed by a loose, tubular sheath on the lower half and 2-3 sheaths at the base. **Leaf** erect, coriaceous, suffused with purple, ovate, acute, 4-6 cm long, 1.6-2.1 cm wide, with the base rounded, sessile. **Inflorescence** a congested, simultaneously 2- to 3-flowered raceme, borne by a peduncle 0.5-1 cm long, subtended by a spathe 0.5 cm long, at the base of the leaf; floral bracts tubular, 2-3 mm long; pedicels 1.5 mm long; ovary 2 mm long; **sepals** dull yellow-green, suffused with purple below the middle, fleshy, subcarinate, glabrous externally, subverrucose within above the middle, the dorsal sepal oblong-obovate, acute, apiculate, 6 mm long, 2.25 mm wide, 3-veined, the lateral sepals connate 3.5 mm into an elliptical, bifid synsepal, 5.5 mm long, 4 mm wide, 6-veined, the apices acute; **petals** translucent yellow, suffused with purple at the base, unguiculate, obliquely oblong, obtuse, 3 mm long, 1 mm wide, 2-veined, with the

labellar half smooth, the upper half dilated, verrucose, denticulate; **lip** yellow, suffused with purple, thick, ovoid-subtrilobed, 3 mm long, 2 mm wide, the apex rounded, minutely denticulate, the sides erect below the middle, the lateral lobes short, rounded, on the basal quarter, the disc shallowly channeled between a pair of thick, subverrucose calli on the middle third, the base thick, truncate, hinged to the column-foot; **column** semiterete, shallowly winged, bidentate at the apex, 2.5 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Pastaza**: east of Río Negro along Río Pastaza, alt. ca. 1500 m, 18 Mar. 1976, *C. Luer, J. Luer & P. Taylor 675* (Holotype: SEL).

This species, known only from eastcentral Ecuador, is characterized by the acute, ovate leaf; a somewhat shorter ramicaul; and a short, two- or three-flowered raceme. The flowers are most distinctive with the unequal sides of the unguiculate petals. The labellar half and margin is smooth while the opposite half is slightly dilated and verrucose with the margin denticulate.

Pleurothallis hirsutula Fawc. & Rendle, J. Bot. 47: 3, 1909.

Ety.: From the Latin *hirsutulus*, "covered with little hairs," referring to the cauline sheaths.

Syn.: *Acianthera hirsutula* (Fawc. & Rendle) Pridgeon & M.W.Chase, Lindleyana 16: 244, 2001.

Plant medium in size, epiphytic, shortly repent, rhizome thick, to 10 cm long or longer, 2-5 mm long between ramicauls, with pubescent sheaths, roots slender. Ramicauls slender, ascending to erect, 4-14 cm long, with 3-4, spaced, tubular, long-pubescent sheaths, often shed. **Leaf** erect, coriaceous, elliptical or elliptical-ovate, acute, sessile, 4-9 cm long, 1.5-2 cm wide, narrowly cuneate at the base. **Inflorescence** a subcongested, distichous, simultaneously several-flowered raceme, 3-4 cm long including the petiole less than 1 cm long, subtended by a spathe 5-10 mm long at the base of the leaf; flowers dark purple, more or less erect; floral bracts tubular, 2-3 mm long; pedicels 2 mm long; ovary partially minutely papillose, 1 mm long; **sepals** glabrous, fleshy, subcarinate, the dorsal sepal elliptical, acute, 7 mm long, 3 mm wide, 3-veined, the lateral sepals connate midway into an elliptical, concave synsepal, 7 mm long, 4.5 mm wide together, the apices acute; **petals** translucent purple, ovate, acute, slightly acuminate, erose above the middle, 3.5 mm long, 2 mm wide, 1-veined; **lip** deep purple, fleshy, cellular-spiculate within, oblong-subtrilobed, 3 mm long, 1 mm wide, the apex rounded, the sides obtuse and erect below the middle, the disc thick, shallowly cleft at the apex, shallowly concave between a pair of low, minutely spiculate calli above the middle, the base truncate, hinged to the tip of the column-foot; **column** shallowly winged, minutely denticulate at the apex, 2 mm long, the anther, rostellum and stigma ventral, the foot 1.5 mm long.

JAMAICA: Holly Mount, Mt. Diablo, near Ewarton, alt. 2,600 ft., 10 Aug. 1896, *W. Harris 6681* (Holotype: BR; Isotype: K, NY); Holy Mount, Mt. Diablo, 30 Aug. 1905, *W. Harris 9890* (AMES, C, K, NY, US); Hollymount, 19 Sept. 1906, *N.L. Britton 770* (NY).Upper Clarendon, Peckham Woods, 7 July 1911, *W. Harris 10984* (AMES, K, NY, US); vicinity of Troy, alt. 600 m, 28 June 1904, *W.R. Maxon 2853* (AMES, US); Clarendon Parish, Peckham Woods, southwest of McKoy, northeast of Spaldings, alt. 2,500 ft., 1 July 1989.*D.L. Kelly & D. Burke 9499* (TCD). Cockpit Country, Tyre, 13-18 Sept. 1906, *N.L. Britton 579* (NY); St. Ann: Union Hill, near Moneague, 6-7 Apr. 1908, *N.L. Britton & A. Hollick 2797* (AMES, NY); Mt. Diablo, north of Hollymount, alt. 2,700-2,800 ft., 6 Aug. 1965, *H.A. Hespenheide 859* (AMES, DUKE, US), C. Luer illustr. 19041; Trelawny, northwest of Troy, alt. 1,000-2,000 ft., 15 July 1963, *M.R. Crosby, H.A. Hespenheide & W.R. Anderson 746* (AMES, DUKE). **St. James**: south of Sweet Water, alt. 2,100 ft., 23 May 1953, *G.R. Proctor 7987* (AMES). **Clarendon**: Glenwood Springs between Balcarres and Sunbury, alt. 3,100 ft., 21 July 1976, *G.R. Proctor 36362* (J, MO).

This species, endemic in Jamaica, is unusual with the ramicauls clad in three or four, more or less evenly spaced, pubescent sheaths. The racemes, bearing several, dark purple flowers, are only half as long as the narrow, sessile leaves. The sepals are fleshy and glabrous; the petals are minutely erose with the apex acute; and the lip is basically similar to the other species in the subgenus, but the inner surfaces and calli are densely cellular-spiculate,

Pleurothallis hondurensis Ames, Sched. Orch. 7: 20, 1924.

Ety.: Named for Honduras, the country where the species was collected.

Syn.: *Acianthera hondurensis* (Ames) Pridgeon & M.W.Chase, Lindleyana 16: 244, 2001.

Plant medium in size to large, epiphytic, shortly repent, the rhizome 3-5 mm long between ramicauls; roots slender. Ramicauls slender, erect, terete, slightly compressed above, 5-15 cm long, with a

tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, thickly coriaceous, suffused with purple, narrowly elliptical, acute, 6-11 cm long, 1-2.5 cm wide, cuneate below to the sessile base. **Inflorescence** a loose, distichous, slightly flexuous, simultaneously several-flowered raceme, 3-6 cm long including the peduncle 1.5-2 cm long, subtended by a spathe 7-10 mm long, at the base of the leaf; floral bracts 1.5-2.5 mm long; pedicels 1-1.5 mm long; ovary 1.5 mm long; **sepals** fleshy, glabrous, subcarinate, pale yellow, variously mottled and striped with purple, the dorsal sepal oblong, acute, thickened toward the apex, 7.5-10 mm long, 1.5-2 mm wide, 3-veined, the lateral sepals connate into an oblong-ovate, obtuse, minutely bifid lamina, 7-9 mm long, 4.25-5 mm wide, 6-veined; **petals** translucent with purple midvein, obovate, acute, minutely denticulate, 2.5-3 mm long, 0.6-0.75 mm wide, 1-veined; **lip** yellow or purple, thick, oblong, obtuse to rounded at the apex, microscopically denticulate, 3.5-4 mm long, 1.2-1.75 mm wide, the sides erect below the middle with an obtuse angle between the middle and basal thirds, the disc shallowly sulcate between a parallel pair of low calli on the middle third, the base broadly subunguiculate, truncate, minutely lobed at the angles, hinged to the column-foot; **column** winged above the middle, 2-2.5 mm long, dentate at the apex, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

HONDURAS: Lancetilla Farm near Tela, Tela River, alt. 350 ft., 16 Mar. 1923, *O. Ames II 204* (Holotype: AMES); Tauxilla, Copeta Farm, alt. 150 ft., 14 Mar. 1923, *O. Ames II 197* (AMES); near Progresso, Cordilla de Mico Quemada, alt. 450 ft., 19 Mar. 1923, *O. Ames II 233* (AMES). Toledo district, near Mafridyla Lagoon, 12 May 1952, *P.H. Gentle 7690* (LL, MO). **Atlantida**: Campamento Quebrada Grande, base of north slope of Pico Bonito, alt. 80-180 m, 10 May 1993, *R.L. Liesner 26177* (MO). Without locality, cultivated E. Marshall, 9 Feb. 1976, *C. Luer 058* (SEL).
BELIZE: Toledo District, Blue Creek, above Blue Creek Village, alt. 40 m, 26 July 1981, *B.R. Adams 291* (K); Toledo District, lower part of Maya Mountains, Richardson Creek, alt. 100-250 m, 11 Mar. 1987, *G. Davidse & Alan E. Brant 32287* (MO).
COSTA RICA: **Heredia**: Sarapiqui, Llanura de Santa Clara, Río Frío, alt. 200 m, 10 May 1995, *J.F. Morales et al. 4072* (INBIO, MO).

This species, found locally at low altitudes in Central America, is related to *P. henrici* from lowland western Ecuador. *Pleurothallis hondurensis* is characterized by an acute, narrowly elliptical, thickly coriaceous leaf borne by a terete ramicaul that is slightly compressed above. The raceme is shorter than the leaf with several, fleshy, purplish or purple-striped flowers borne in a loose raceme. The sepals are acute, the laterals connate; the petals are minutely serrate; and the lip is thick and glabrous with obtusely angled sides between the middle and basal thirds.

Pleurothallis juxtaposita Luer, Lindleyana 6: 103, 1991.

Ety.: From the Latin *juxtapositus*, "placed beside each other," referring to the calli of the lip.

Plant small, epiphytic, repent, the rhizome prostrate, branching, 0.5-2 cm long between ramicauls; roots slender, scattered along the rhizome. Ramicauls slender, ascending to erect, 9-18 mm long, with 2 tubular sheaths about the base. **Leaf** erect, coriaceous, ovate, subacute, 15-20 mm long, 8-12 mm wide, the base rounded, sessile. **Inflorescence** an erect, distantly and simultaneously 2-flowered raceme, 5 mm long, borne by a peduncle 10-13 mm long, produced from the base of the leaf with a narrow spathe 5 mm long; floral bracts 3 mm long; pedicels cellular-glandular, 2 mm long; ovary minutely pubescent, 3 mm long; **sepals** dull yellow with red-brown veins, fleshy, minutely ciliate, glabrous externally, the dorsal sepal narrowly obovate, obtuse, apiculate, 14 mm long, 3 mm wide, 3-veined, the lateral sepals connate into an elliptical, obtuse, bifid, biapiculate lamina, minutely verrucose within, 13 mm long, 5 mm wide; **petals** translucent with a red midvein, obovate, obtuse, minutely fringed, apiculate, 6.5 mm long, 2.25 mm wide, 3-veined; **lip** brown, thick, oblong, 4 mm long, 1.6 mm wide, with the apex rounded, apiculate, the disc with a converging pair of crested calli near the middle, and a pair of rounded calli above the base, cleft between, the base bilobulate, hinged to the column-foot; **column** semiterete, 3 mm long, the foot stout with the apex of the ovary, the anther, rostellum and stigma ventral.

PANAMA: **Chiriquí**: epiphytic in cloud forest near the Fortuna dam site, alt. 1100 m, 16 Feb. 1985, *C. Luer, J. Luer, R.L. Dressler & K. Dressler 10585* (Holotype: MO); Camp Hornito, Fortuna dam site, alt. 1200 m, 9 Jan. 1977, *R.L. Dressler 5583* (MO). **Bocas del Toro**: between Fortuna and Chiriquí Grande, alt. 90 m, 17 Feb. 1985, *C. Luer, J. Luer, R. & K. Dressler 10595* (MO).

This small species, apparently restricted to western Panama, is characterized by the repent and branching rhizome that forms entangled masses. The peduncle, bearing a two-flowered raceme, is shorter than the little, ovate leaf. The flowers are basically similar to most of the others of the section including fleshy sepals and fimbriate petals. Most distinguishing is the pair of rounded calli above the base of the lip. They nearly touch in the midline with a deep cleft between them.

Pleurothallis kegelii Rchb.f., Linnaea 41: 132, 1877.

Ety.: Named for the German collector Hermann Aribert Heinrich Kegel who collected this species.

Plant medium in size, epiphytic, shortly repent, the rhizome 2-5 mm long between ramicauls; roots slender. Ramicauls erect, 4-7 cm long, slender, enclosed above the base by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, sessile, subacute 6-9 cm long, 1.2-1.5 cm wide, cuneate below into the base. **Inflorescence** a loose, few-flowered raceme, ca. 5 cm long including the peduncle 1.5-2.5 cm long, subtended by a spathe 7-10 mm long, from the apex of the ramicaul at the base of the leaf; floral bract 2.5 mm long; pedicel 2 mm long; ovary 1.5 mm long; **sepals** purplish, glabrous, the dorsal scpal narrowly obovate, acute, 8.5 mm long, 1.2 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate to near the apex into an elliptical, concave, shortly bifid synsepal, 8 mm long, 4 mm wide, with the apices acute, apiculate; **petals** translucent, oblong, acute, minutely serrate, 3 mm long, 1 mm wide, 1-veined; **lip** oblong, 3.25 mm long, 1.6 mm wide, with the apex broadly rounded with the margins serrate, sides broadly rounded and erect below the middle, with a marginal crest that curves inward to join the pair of verrucose calli above the middle of the disc, and with a pair of rounded calli above the base; the base truncate and minutely bilobulate, hinged to the column-foot; **column** slender, semiterete, lacerate at the apex, 3 mm long, the foot 1 mm long with a pair of calli, the anther and stigma ventral.

SURINAME: in forests near Quarta, Jan. 1846, *W. Kegel 1244* (Holotype: W; Isotype: BR).
FRENCH GUYANA: Bassin du Sinnmary, 3 Oct. 1993, *G. Cremers 13255* (CAY), C. Luer illustr. 18673.

This species, first collected by Kegel in 1846 and described by Reichenbach, is endemic and infrequent in lowland Suriname and French Guyana. It is characterized by an elliptical leaf borne by a ramicaul as long as or a little longer. A short, loose raceme of four to six flowers is about half as long as the leaf. The narrowly obovate dorsal sepal is free from the synsepal which is shortly bifid between apiculate tips. The petals are minutely serrate; the lip is oblong with a serrulate margin. The sides are broadly rounded below the middle with a crest that curves inward to join the pair of verrucose calli above the middle. Just above the base there is a pair of small, rounded calli. The base is truncate and minutely bilobulate.

Pleurothallis lamia Luer, Selbyana 5: 170, 1979.

Ety.: From the Greek *lamia*, "a bugbear," in allusion to the appearance of the flowers.
Syn.: *Acianthera lamia* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 244, 2001.

Plant large, epiphytic, shortly repent to caespitose; roots coarse. Ramicauls erect, 12-45 cm long, sharply 3-winged, gradually broader toward the leaf, 6-18 mm wide, with the apex slightly above the marginal junction between the ramicaul and leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, fleshy coriaceous, elliptical-ovate, acute to subacute, 8-16 cm long, 2-5 cm wide, sessile with the margins continuous with the wings of the ramicaul. **Inflorescence** a congested, simultaneously 2- to 6-flowered raceme, 15-25 mm long including the peduncle ca. 5 mm long, in a fascicle of successive racemes, from a spathe 5-10 mm long from the apex of the ramicaul; floral bracts 4-5 mm long; pedicels 1-3 mm long; ovary shortly pubescent, 2 mm long; **sepals** dark purple, fleshy, ciliate, shortly pubescent externally, tuberculate within above the middle, the dorsal sepal obovate, obtuse, 7-8.5 mm long, 3 mm wide, 3-veined, the lateral sepals connate into a transversely ovate or obovate lamina with recurved margins, 5 mm long, 6 mm wide, 6-veined, the apex rounded or obtuse, minutely bifid; **petals** edged in purple, ovate with the margins denticulate and dilated below the middle, obtuse, 2.75-3 mm long, 1.75-2 mm wide, 1-veined; **lip** dark purple, thick, fleshy, ovoid-trilobed, 3 mm long, 2 mm wide, the apex ovate, rounded to obtuse, minutely serrulate, the lateral lobes below the middle, erect, rounded, the disc with a pair of thick, oblique carinae near the middle anterior to the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** stout, winged above the middle, 2.5 mm long, the foot 2 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Azuay**: epiphytic in old trees near Lago Zorrogucho, alt. 3000 m, 18 July 1977, *C. Luer, J. Luer & G. Luer 1744* (Holotype: SEL); valley south of Cumbe, alt. 2900-3000 m, 9 June 1979, *B. Løjtnant, A. & U. Molau 14360* (AAU, GB); same area, alt. 3150-3200 m, 28 Jan. 1988, *U. Molau, B. Eriksen & M. Fredrikson 2692* (AAU, GB). **Morona-Santiago**: forest east of Sigsig, alt. 2750 m, 15 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13335* (MO). **Pichincha**: west flank of Volcán Illiniza, Cerro Azul, alt. 2800 m, 23 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12451* (MO); same area, alt. 3000 m, 20 Oct. 1984, *A. Hirtz 2049* (MO); Pasachoa, alt. 3200 m, Feb. 1984, *A. Hirtz 1544* (MO); South Pasachoa, alt. 3300 m, July 1984, *A. Hirtz 1831* (MO).

This large, coarse species is apparently endemic in southern Ecuador at high altitudes. Long, broadly winged ramicauls bear a considerably shorter leaf with which the margins of the leaf and wings of the ramicaul are continuous. A few, dark purple, fleshy, shortly but densely pubescent flowers are borne in a short raceme. The sepals are tuberculate within, the petals are serrate, and the thick lip is distinguished by a prominent pair of oblique calli.

Pleurothallis lamia is related to *P. pantasmoides*, but the former is distinguished by smaller, thicker flowers with a pair of prominent, oblique calli on the lip.

Pleurothallis lanceana Lodd., Bot. Cab. 18: t. 1767, 1831.

Ety.: Named for a Mr. Lance who sent the plant from Suriname to Loddiges.

Syn.: *Pleurothallis ciliata* Knowles & Westc., Floral Cab. 1: 39, 1837.
Ety.: From the Latin *ciliatus*, "ciliate," referring to the fringed petals.

Syn.: *Pleurothallis plumosa* Lindl., Edwards's Bot. Reg. 28: Misc. 72, 1842.
Ety.: From the Latin *plumosus*, "feather-like," referring to the fringed petals.

Syn.: *Pleurothallis crassifolia* Focke, Tijdschr. Wis-Natuurk. Wetensch. 2: 196, 1849, not Rchb.f. 1849.
Ety.: From the Latin *crassifolius*, "thick-leaved," referring to the leaves.

Syn.: *Pleurothallis minax* Rchb.f., Bonplandia 2: 24, 1854.
Ety.: From the Latin *minax*, "projecting, or threatening," alluding to some cryptic property.

Syn.: *Pleurothallis sprucei* Lindl., Folia Orch. *Pleurothallis* 35, 1859.
Ety.: Named in honor of the collector, bryologist R. Spruce.

Syn.: *Pleurothallis serrifera* Lindl., Folia Orch. *Pleurothallis* 34, 1859.
Ety.: From the Latin *serrifer*, "bearing a saw," referring to the serrate petals.

Syn.: *Humboldtia ciliata* (Knowles & Westc.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.
Syn.: *Humboldtia lanceana* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.
Syn.: *Humboldtia plumosa* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.
Syn.: *Humboldtia serrifera* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.
Syn.: *Humboldtia sprucei* (Rchb. f.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis daguensis* Lehm. & Kraenzl., Bot. Jahrb. Syst. 24: 444, 1899.
Ety.: Named for the Río Dagua where the species was collected.

Syn.: *Pleurothallis huebneri* Schltr., Beih. Bot. Centralbl., 42(2): 90, 1925.
Ety.: Named for Georg Hübner, German collector, who collected this species.

Syn.: *Pleurothallis ciliata* var. *elongata* C.Schweinf., Bot. Bus. Leafl., 16: 47, 1953.
Ety.: From the Latin *elongatus*, "elongate," referring to the inflorescence.
Syn.: *Acianthera lanceana* (Lodd.) Pridgeon & M.W.Chase, Lindleyana 16: 244, 2001.

Plant medium to large in size, epiphytic, shortly repent to caespitose, the rhizome stout, up to 1 cm long between ramicauls; roots slender. Ramicauls stout, terete, erect, 3-12 cm long, with a tubular sheath below the middle and 1-2 other sheaths at the base. **Leaf** erect, thickly coriaceous, elliptical, acute, 5-10 cm long, 1.5-3 cm wide, the base cuneate, sessile. **Inflorescence** a suberect to horizontal, distichous, sublax, nearly simultaneously several-flowered raceme, 10-23 cm long including the peduncle 3-5 cm long, from a spathe 1.5-2 cm long, at the base of the leaf; floral bracts tubular, 2-4 mm long; pedicels 1.5-3 mm long; ovary 1.5-3 mm long, cellular-pubescent; **sepals** yellow or yellow-green, often suffused with purple or brown below the middle, fleshy, minutely pubescent externally, the dorsal sepal narrowly obovate, acute, 12-18 mm long, 1.5-3 mm wide, 3-veined, the lateral sepals connate into a narrowly ovate synsepal, 12-17 mm long, 4.5-6 mm wide, 6-veined, with the apex acute, shortly bifid; **petals** yellow, narrowly ovate, acute, acuminate, long-ciliate on the labellar margin, short-ciliate on the opposite margin, 5-6 mm long, 1-1.5 mm wide, faintly 3-veined; **lip** brown or purple, thick, elliptical, obtuse, 3-4 mm long, 2 mm wide, with minutely serrate margins, the sides erect and broadly rounded below the middle, the disc sulcate between thick calli on the middle third, the base truncate, minutely lobed at the corners, hinged to the colum-foot; **column** winged above the middle, 2.5-3 mm long, dentate at the apex, the foot stout, 1 mm long, the anther, rostellum and stigma ventral.

Representative collections:
SURINAME: Without collection data, obtained from Suriname, cultivated in England, *Mr. Lance s.n.* (Holotype is illustration published by Loddiges, K); Beckhuizen, July 1845, *Kegel 930* (W); Hendrikken, Jaranaue, *Wullschlegel 1111* (W); Paramaribo, 25 Oct. 1846, *W. Focke s.n.* (holotype of *P. crassifolia*: illustr. at W; isotype: BR).

TRINIDAD: Agua Santa Arina, 16 Apr. 1908, *W.E. Broadway 2341* (AMES); Heights of Santa Cruz, 4 Mar. 1911, *W.E. Broadway 4124* (K); Maraval, 12 Apr. 1911, *W. E. Broadway 4265* (K); Platanal road, 5 Apr. 1979, *D. Philcox & B. Phillips 8347* (K).
GUYANA: Demerara, near the Falls of Ouripano, Masseroni River, collected by John Henchman, received in 1834 and cultivated by *John Wilmore s.n.* (holotype of *P. ciliata*: K); Berbice River, Mar. 1882, *Jenman 1690* (K); without locality, *E.F. im Thurn 39* (K); Kamoa River, alt. 260 m, 18 Sept. 1989, *M.J. Jansen-Jacobs et al. 1673* (K); Demerara-Berbice, Essequibo Rver, alt. 5 m, 22 May 1993, *T.W. Henkel & R. Williams 2103* (MO, US).
VENEZUELA: Colonia Tovar, 1854-56, *A. Fendler 2152* (holotype of *P. minax*: K; isotype: BR, illustr. W). Without locality, *Lansberg s.n.* (W); Caracas, *H. Wagener 562* (W); Caracas, *H. Wagener* (W). **Monagas**: Caripe, Río Caripe, alt. 850 m, 17 Apr. 1945, *J.A. Steyermark 62152* (AMES, VEN). **Bolívar**: Gran Sabana, southwest of Karauin-tepui, alt. 900-1000 m, 21 Apr. 1988, *R. Liesner 23504* (MO). **Amazonas**: Río Yatua, near Piedra Arauicaua, alt. 100-140 m, 2 Feb. 1954, *B. Maguire, J.J. Wurdack & G.S. Bunting 37453* (AMES, LE, MO, NY).
COLOMBIA: **Valle del Cauca**: near Buenaventura, 16 Aug. 1880, *F.C. Lehmann 49* (W); near Buenaventura, *F.C. Lehmann B.T. 312* (K, L); Buenaventura, wet rocks along Río Dagua, near Sucre, *F.C. Lehmann 8167* (holotype of *P. daguensis* presumably destroyed at B). **Vaupes**: Mt. Chiribiquete, alt. 1,700-2,100 ft., 15 May 1943, *R.E. Schultes 5418* (AMES). **Amazonas**: Río Putumayo, between Eje Apaporis and Tabatinga, alt. 100 m, 9 Aug. 1994, *D. Cardenas 5364* (COAH, MO).
Leticia, Puerto Nariño, Loretoyacu River, 13 Sept. 1963, *D.D. Soejarto & R.E. Schultes 840* (AMRS, F).
ECUADOR: **Sucumbíos**: Imuya Cocha on Río Lagarto Cocha, alt. 200 m, 30 July 1991, *C.H. Dodson, P. Scharff & M. Ryan 18851* (MO). **Pichincha**: near Chiriboga, alt. 1200 m, 3 Apr. 1986, *C.H. Dodson & D. D'Alessandro 16374A* (MO). **Napo**: Apyua near Puerto Napo, 14 Aug. 1968, *H. Lugo 307* (GB); south of Puerto Napo, alt. 500 m, 8 Apr. 1984, *A. Gentry, W. Palacios & J. Zaruma 14917* (MO); Jatun Sacha, east of Misahuallí, alt. 400 m, 23 Jan. 1989, *C. Cerón 5980* (MO). **Morona-Santiago**: south of Macas along the river, alt. 700 m, 5 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12666* (MO).
PERU: **Loreto**: vicinity of Iquitos, alt. 100 m, Nov. 1936, *G. Klug 10013* (holotype of var. *elongata*: AMES; isotype: US); same area, *G. Klug 10050* (AMES); Quebrada Cuninico, 7 July 1972, *T. Croat 17792* (MO). **Pasco**: Oxapampa, Palcazu valley, Río San José, alt. 400 m, 13 May 1983, *D.N. Smith 4010* (MO). **Huánuco**: Leoncio Prado, near Tingo Maria, alt. 800 m, 20 Oct. 1990, *E. Jara s.n.* (MO). **San Martín**: Mariscal Cáceres, Toache Nuevo, Quebrada de Mantención, alt. 500 m, 26 July 1974, *J. Schunke 7781* (AMES, MO).
BOLIVIA: **La Paz**: Nor Yungas, between Unduavi and Coroico, below Sacramento, alt. 6,000 ft., 22 Feb. 1975, *T. Plowman & E.W. Davis 5159* (AMES); Nor Yungas, northeast of Chuspipata, alt. 2100 m, 3 Apr. 1984, *J.C. Solomon & M. Uehling 12175* (MO); Sud Yungas, east of Coroico, alt. 1970 m, 25 Nov. 1992, *C. Luer, J. Luer, W. Teague, R. Vásquez & D. Ric 16493* (MO). **Cochabamba**: Ayopaya, Sailapata, alt. 500 m, Nov. 1935, *M. Cárdenas 3284* (AMES); north of and below Cocapata, alt. 2100 m, 5 Feb. 1997, *C. Luer, J. Luer, W. Teague, R. Vásquez & D. Ric 18388* (MO).
BRAZIL: Rio Uapés, Nov. 1852, *R. Spruce 2725* (holotype of *P. sprucei*: K; isotype: W); Castingas, Panuré, *R. Spruce 2724* (holotype of *P. serrifera*: K; isotype: W).
BELIZE: Toledo District, lower part of Maya Mountains, Richardson Creek, alt. 100-250 m, 11 Mar. 1987, *G. Davidse & A.E. Brant 32287* (MO).
COSTA RICA: **Cartago**: Naranjo, 23 Mar. 1857, *H. Wendland 546* (W); turrialba 27 Mar. 1857, *Wendland 560* (W); *A. Endres 27* (W). Without collection data, cultivated by the Jesups, Bristol, CT, 29 Sept. 1991, *C. Luer 15472* (MO).

This species was apparently described from a plant poorly cultivated in a nineteenth century "stove," as evidenced by the published illustration which suffices as the holotype. It is relatively frequent in much of Central America and the Andes. It is variable in size vegetatively, the raceme being shorter than to much longer than the leaf. The sepals are a shade of yellow-orange, while the synsepal is conspicuously suffused with brown below the middle in the eastern lowlands of Ecuador. The sepals are variously ciliate; and the calli of the lip vary in different proportions.

Pleurothallis litensis Luer & Hirtz, Rev. Soc. Bol. Bot. 3: 52, 2001.

Ety.: Named for the community of Lita, near where the species was collected.

Plant small, epiphytic, repent; rhizome stout, 0.5-1 cm long between ramicauls, roots slender. Ramicauls slender, erect, 1-2 cm long, with a tubular sheath below the middle and another at the base. **Leaf** erect, coriaceous, ovate, acute, 2.2.5 cm long, 1-1.2 cm wide, round at the sessile base. **Inflorescence** a single, erect flower, borne by a peduncle 2-3 mm long from within a 3-4 mm long spathe; floral bracts tubular, 2-2.5 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** light yellow-brown,

dotted in lines and suffused below the middle with red-brown, carinate, glabrous, the dorsal sepal narrowly oblong, acute, 5 mm long, 1.25 mm wide, 3-veined, thickened toward the apex, the lateral sepals connate into an ovate, concave, bicarinate synsepal, 5 mm long, 2.25 mm wide, shortly bifid at the acute apex; **petals** translucent with thin, red stripe, obovate, acute, denticulate above the middle, 2.5 mm long, 1 mm wide; **lip** red-brown, thick, oblong-trilobed, obtuse, denticulate-erose, 2.5 mm long, 1 mm wide, the lateral margins erect, obtusely angled below the middle, the disc shallowly concave between a pair of verrucose calli above the middle, the base bilobulate, hinged to the column-foot; **column** slender, semiterete, 2 mm long, the anther and stigma ventral, the foot thick, 1 mm long.

ECUADOR: **Esmeraldas**: wet forest west of Lita toward San Lorenzo, alt. 300 m, 12 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 15569* (Holotype: MO).

This species from lowlands western Ecuador, is most closely allied to *P. angustifolia* Lindl. from Central America and the Antilles. It is also characterized by a repent habit and a single flower, but with ovate, acute, sessile leaves. The sepals are narrowly acute; the petals are minutely denticulate; the lip is thick, denticulate-erose, with a pair of verrucose calli.

Pleurothallis lojae Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 60, 1921.

Ety.: Named for the Ecuadorian province of Loja where the species was collected.

Syn.: *Pleurothallis brunnescens* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 19: 183, 1923.
Ety.: From the Latin *brunnescens*, "becoming brown," referring to the color of the flower.

Syn.: *Pleurothallis citrophila* Luer, Selbyana 3: 266, 1977.
Ety.: From the Latin *citrophilus*, "citrus-loving," in reference to the host trees of citrus.

Syn.: *Pleurothallis florosa* Luer, Selbyana 3: 302, 1977.
Ety.: From the Latin *florosus*, "abounding in flowers," referring to the floriferous habit.
Syn.: *Acianthera citrophila* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.
Syn.: *Acianthera florosa* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, ascending to erect, 3-10 cm long, laterally compressed in the upper third, with a thin, tubular sheath on the lower half and 2-3 sheaths at the base. **Leaf** spreading to suberect, thickly coriaceous, ovate, elliptical, or narrowly elliptical, acute, 3-8 cm long, 1.5-3 cm wide, cuneate below into the sessile base. **Inflorescence** a nearly simultaneously 3- to 8-flowered, distichous raceme, 2-2.5 cm long including the peduncle 0.5-1 cm long, borne on top of the leaf, subtended by a spathe 5-10 mm long at the base of the leaf; floral bracts 1.5-2 mm long; pedicels 1 mm long; ovary 1.5-2 mm long; **sepals** fleshy, yellow-green or yellow-brown, often striped with purple or darker brown, the dorsal obovate, obtuse to narrowly obtuse, thickened above the middle, glabrous to verrucose-pubescent within, 4-8 mm long, 1.5-2.5 mm wide, 3-veined, the lateral sepals connate into an ovate, obtuse, bifid lamina with the apices acute, 4-7 mm long, 2-3.5 mm wide, 6-veined; **petals** translucent yellow with a brown or purple midvein, obovate, subacute, minutely denticulate to coarsely denticulate above the middle, 2-2.75 mm long, 0.8-1 mm wide, 1-veined; **lip** purple to brown, thick, ovoid, 2.8-3.25 mm long, 1-1.5 mm wide, the apex obtuse to rounded, minutely to coarsely denticulate, the sides erect and broadly rounded below the middle, the disc with low, midline callus on the lower half and a pair of parallel, denticulate carinae from the lower third onto the apical third, the base subtruncate, hinged to the tip of the column-foot; **column** slender, 2.5-3 mm long, longitudinally winged above the middle, minutely denticulate at the apex, the foot ca. 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Zamora-Chinchipe**: El Diatomo, eastern slopes of the Andes of Loja, alt. 1300-1600 m, Dec. *F.C. Lehmann 8202* (Holotype: K), C. Luer illustr. 17263. **El Oro**: Cordillera Mollopungo, east of Río Chico, Muyuyacu, alt. 1100 m, Aug. 1990, *A. Hirtz 4908* (MO). **Manabí**: without exact locality, purchased by R. Estrada, cultivated in Guayaquil, 24 Feb. 1977, *C. Luer 1573* (holotype of *P. florosa*: SEL). **Morona-Santiago**: along Río Yunganza below Limón, alt. 950 m, 17 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11859* (MO). **Napo**: epiphytic in forested hill south of Lumbaqui, alt. 850 m, 10 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11765* (MO); forest in Bermejo oil fields, alt. 850 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 12034* (MO). **Pastaza**: forest along Río Pastaza wast of Río Negro, alt. 1150 m, 12 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11183* (MO).
PERU: **Huánuco**: near Tingo Maria, collected by J. Kuhn, Mar. 1975, cultivated at J & L Orchids, Easton, CT, *C. Luer 2901* (SEL).
BOLIVIA: **La Paz**: Nor Yungas, forest between Caranavi and Alto Beni, alt. 1550 m, 26 Jan. 1988, *C. Luer et al. 12942* (MO); Bella Vista, Aug. 1991, cultivated in Quito, Ecuador, *A. Hirtz 5799* (MO).
COLOMBIA: **Antioquia**: forest remnant between Carolina and Guadalupe, alt. 1830 m, 15 May 1985, *C. Luer, R. Escobar & E. Valencia 11365* (MO).

PANAMA: **Bocas del Toro**: forest between Fortuna and Chiriquí Grande, alt. 400 m, 17 Feb. 1985, *C. Luer, J. Luer, R.L. Dressler & K. Dressler 10619* (MO). **Coclé**: epiphytic in orange grove above El Valle, alt. 1000 m, 2 Sept. 1976, *C. Luer & H. Butcher 1375* (SEL, type of *P. citrophila*).
COSTA RICA: **Alajuela**: San Pedro de San Ramón, alt. 1100 m, June 1921, *A.M. Brenes 27* (holotype of *P. brunnescens* destroyed at B, lectotype here designated: AMES 31282, illustr. of type). **Cartago**: near Pejivalle, alt. 900 m, 7-8 Feb. 1926, *P.C. Standley & J. Valerio 46825, 46846* (AMES). **San José**: north slope of the Cordillera Central between Río Angel and Río Sarapiqui, alt. ca. 800 m, collected by Cl. Horich, 16 Mar. 1986, *C. Luer 12082* (MO). **Puntarenas**: Coto Brus, south of Las Cruces, alt. 850 m, 10 Mar. 1995, *C. Luer, J. Luer & J. Atwood 17387* (MO).

This species is represented by intergrading populations, some of which have been recognized as species. The concept is variable vegetatively and florally in its wide distribution at relatively low altitudes from Costa Rica through the Andes into Bolivia. The ramicauls are slightly compressed toward the apex. The leaf is acute, varying from ovate to elliptical. The short, congested raceme lies on top of the leaf. The inner surfaces of the sepals are more or less minutely verrucose. The petals are minutely denticulate. The lip is oblong-ovate with an obtuse, minutely denticulate to nearly smooth apex, a pair of verrucose calli with a low, broad callus between.

Pleurothallis madisonii Luer, Selbyana 5: 171, 1979.

Ety.: Named in honor of Michael T. Madison who first discovered this species.
Syn.: *Acianthera madisonii* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 244, 2001.

Plant large, epiphytic, shortly repent with the rhizome thick, 0.5-1 cm long between ramicauls; roots slender. Ramicauls ascending to erect, 10-30 cm long, terete below, slightly compressed above, with a tubular sheath on the lower quarter and 1-2 others at the base. **Leaf** erect, coriaceous, elliptical, obtuse, shortly acuminate, 15 cm long, 9 cm wide, with the base rounded, decurrent on the ramicaul for 2.5 cm. **Inflorescence** a congested, distichous, simultaneously several-flowered raceme, 5 cm long including the peduncle 0.5-1 cm long, borne on the surface of the leaf, subtended by a spathe 1 cm long, from the apex of the ramicaul above the insertion of the leaf; floral bracts infundibilar, 4 mm long, concealing the pedicel and much of the ovary; pedicels stout, 2 mm long; ovary 2.5 mm long; **sepals** fleshy, more thickened above the middle, glabrous, subverucose externally above the middle, the dorsal sepal yellow, narrowly oblong-obovate, obtuse, apiculate, with the margins recurved above the middle, 9.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals purple, connate 7 mm into an obovate, bicarinate synsepal, 9.5 mm long, 5.5 mm wide, the apices acute, apiculate, free 2 mm; **petals** purple, obovate, obtuse, minutely serrate, apiculate, 3 mm long, 1.5 mm wide, minutely verrucose within, with a serrated carina within the apical margin; **lip** purple, thick, obovate-trilobed, 4.5 mm long, 3 mm wide across the lobes, the apex obtuse, minutely serrate, apiculate, the margins above the middle, erect, broadly rounded, the margins also erect below the middle, serrate, disc with a low, midline callus above the middle between thickened sides, callous toward the base, bilobed at the base, the base narrowlly unguiculate, truncate, minutely biauriculate at the corners, hinged to the column-foot; **column** semiterete, winged above the middle, 3 mm long, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Carchi**: vicinity of Maldonado, wet forest, alt. 1600 m, 13 Apr. 1977, *M.T. Madison 3922* (Holotype: SEL), C. Luer illustr. 4077.

This species is apparently rare, known only from the original collection in an area frequently visited by collectors. Although similar vegetatively to *P. decurrens*, this species differs in many respects. It is characterized by the large leaf that is decurrent on the ramicaul. The short raceme emerges from the lower quarter of the blade. The sepals are fleshy; the petals are verrucose within with a serrated crest within the apical margin; and the lip is trilobed above the middle with a low, midline callus above the middle.

Pleurothallis martinezii Luer, sp. nov.

Ety.: Named for E. Martinez, co-collector of this species.

Species haec *P. hondurensis* Ames similis, sed racemo successivifloro, labello minute denticulato cum lobis lateralibus obtusis basalibus differt.

Plant medium in size to large, epiphytic, shortly repent, the rhizome 3-5 mm long between ramicauls; roots slender. Ramicauls slender, erect, terete, slightly compressed above, 4.5-14.5 cm long, with

a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, thickly coriaceous, narrowly elliptical, acute, 5.5-10 cm long, 1.2-1.6 cm wide in the dry state, cuneate below to the sessile base. **Inflorescence** a loose, slightly flexuous, successively few-flowered raceme, to 3.5 cm long including the peduncle ca. 1 cm long, subtended by a spathe 1 cm long, at the base of the leaf; floral bracts 1.5-2 mm long; pedicels 1-1.5 mm long; ovary 1.5 mm long; fruit to 35 mm long; flowers dark red, **sepals** fleshy, glabrous, the dorsal sepal oblong, acute, thickened toward the apex, 7.5 mm long, 1.5 mm wide, 3-veined, the lateral sepals elliptical, oblique, acute, connate at least to the middle into an elliptical, bifid lamina, 8 mm long, 4 mm wide, 6-veined; **petals** translucent, obovate, acute, minutely denticulate, 2 mm long, 0.6 mm wide, 1-veined, with an obscure pair of subserrate carinae; **lip** oblong, obtuse to rounded at the apex, minutely denticulate, 3.2 mm long, 1.2 mm wide, the sides erect below the middle with an erect, obtuse lobe above the base, the disc shallowly sulcate between a parallel pair of low calli on the middle third, the base narrowly subunguiculate, minutely lobed at the angles, hinged to the column-foot; **column** winged above the middle, 1.75 mm long, dentate at the apex, the foot 1 mm long, the anther, rostellum and stigma ventral.

MEXICO: **Chiapas**: Ocosingo, Estación Chajul, alt. 150 m, 19 Apr. 1993, *E. Martínez S. & C.H. Ramos 26406* (Holotype: AMO), C. Luer illustr. 19175; same locality, 14 Mar. 1993, *E. Martínez S. & C.H. Ramos 26310* (AMO).

This species is known only from the state of Chiapas at a low altitude. It is vegetatively similar to *P. hondurensis* from neighboring Guatemala and Honduras, but differs with a successively few-flowered raceme, serrated carinae on the petals, and a minutely denticulate lip with basal lobes.

Pleurothallis melanoglossa Luer & Escobar, Orquideología 20: 74, 1966.

Ety.: From the Greek *melanoglossa*, "a black tongue," referring to the labellum.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, broadly expanded above, sharply winged, 5-6.5 cm long, with a 2-3 tubular sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, 4-6 cm long, 2 cm wide, with the margins of the sessile base continuous with the wings of the ramicaul. **Inflorescence** a simultaneously few-flowered raceme, ca. 1 cm long including the peduncle, subtended by a spathe ca. 3 mm long from the apex of the ramicaul; floral bracts infundibular, 2 mm long; pedicels 1.5 mm long with the swollen ovary ca. 8 mm long; **sepals** green with 3 purple veins within, rigid, fleshy, microscopically pubescent, the dorsal sepal elliptical-obovate, obtuse, pubescent within above the middle, 8.5 mm long, 3 mm wide, 3-veined, the lateral sepals connate into a rigidly ovoid, concave synsepal, 7 mm long, 5 mm wide unexpanded, with the apex broadly retuse, shortly and abruptly bi-apiculate; **petals** purple, obovate, subacute, minutely denticulate above the middle, 3 mm long, 1.5 mm wide, 1-veined, with the vein thickened into a broad callus above the middle; **lip** purple-black, thick, obovoid-trilobed, 4 mm long, 2.5 mm wide, 1 mm thick, the apex broadly rounded, the lateral lobes below the middle, erect, uncinate, the disc coarsely verrucose above the middle, the base truncate, minutely bilobulate, delicately hinged on the end to the column-foot; **column** stout, semiterete, 2 mm long, minutely denticulate at the apex, the foot stout, 1.5 mm long, the anther, rostellum and stigma ventral.

COLOMBIA: **Risaralda**: epiphytic in forest remnant east of Santa Rosa de Cabal, alt. 2800 m, 12 May 1993, *C. Luer, J. Luer & R. Escobar 16795* (Holotype: MO).

Only one specimen of this species in advanced anthesis was discovered. Although the swollen ovaries are nearly as large as the flower itself, the floral parts are not altered significantly from early anthesis. Vegetatively, the species is similar to *P. sicaria*, although the only plant known is probably a small representative of the species. The sepals are rigidly fleshy and microscopically pubescent externally. The petals are obovate and minutely denticulate with the midvein markedly thickened above the middle. The black lip is thick and obovate, coarsely verrucose above the middle, with erect, uncinate lateral lobes below the middle.

Pleurothallis mexiae Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 174, 1999.

Ety.: Named for Ynes Mexia who collected this species.

Syn.: *Pleurothallis chamensis* var. *tenuis* C.Schweinf., Bot. Mus. Leafl. 10: 176, 1942.

Ety.: From the Latin *tenuis*, "thin," referring to the membranous texture of the flowers.

Syn.: *Acianthera mexia* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 244, 2001.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, narrowly triquetrous, 3-6 cm long, with 2-3 thin, tubular sheaths on the lower third and at the base. **Leaf** erect, coriaceous, ovate, subacute, 3-4.5 cm long, 1.5-2.5 cm wide, with the base rounded, sessile. **Inflorescence** a congested, simultaneously 2- to 4-flowered raceme, 1.5 cm long including the peduncle ca. 0.5 cm long, erect, along the dorsum of the leaf, subtended by a spathe 4-5 mm long, at the base of the leaf; floral bracts thin, 2 mm long; pedicels 2 mm long; ovary 1.5 mm long; flowers "dark maroon with yellow-tipped petal," **sepals** glabrous, the dorsal sepal oblong, obtuse, 5.5 mm long, 1.5 mm wide, 3-veined, the lateral sepals connate ca. 3 mm into an elliptical synsepal, 5 mm long, 3.5 mm wide, 6-veined, the apex bifid with the tips acute; **petals** translucent, oblong-obovate, obtuse, minutely serrate above the middle, 2 mm long, 0.8 mm wide, 1-veined; **lip** thick, oblong-subtrilobed, 2.5 mm long, 1 mm wide, the apex obtuse, minutely serrulate, the lateral lobes below the middle, erect, broadly rounded, the disc shallowly channeled between a pair of parallel, serrulate calli on the middle third, the base truncate, hinged to the tip of the column-foot; **column** semiterete, winged, 2 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

PERU: **Huánuco**: Churubamba district, Hda. Mercedes, Cotirarda, alt. 1560 m, 21 Sept. 1936, *Ynes Mexia 8215a* (Holotype of *P. chamensis* var. *tenuis*: AMES), C. Luer illustr. 18951.

This species is known only from the original collection. It was described as a variety of *P. chamensis*, which is treated here as a variation of *P. casapensis*. Morphologically, the flowers are practically identical to those of the *P. casapensis* complex, but they were described as being "dark maroon." The flowers of the former species are yellow, yellow-green, or orange. I know of no dark purple collection, even though both yellow and purple colors occur in many species.

Vegetatively, the two taxa differ markedly. The densely caespitose ramicauls of *P. mexiae* are slender and narrowly triquetrous while the stout, triquetrous ramicauls of *P. casapensis* are produced along a stout, creeping rhizome. The leaf of *P. mexiae* is ovate and rounded at the sessile base, while the leaves *P. casapensis* are more or less decurrent on the ramicaul.

Pleurothallis miguelii Schltr., Symb. Antil. 7: 493, 1913.

Ety.: Named in honor of Father Miguel Fuertes who first collected this species.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 1.5-6 cm long, enclosed below the middle with 2-3 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, sessile, 2-6 cm long, 1-2 cm wide, the base cuneate. **Inflorescence** a strict, lax, secund, simultaneously few- to several-flowered raceme of non-resupinate flowers, 4-8 cm long including the minutely scabrous peduncle 2-3 cm long, borne from the base of the leaf with a spathe 8-28 mm long, 3-6 mm broad; floral bracts tubular, 2-4 mm long; pedicels 1-2 mm long; ovary puberulent, 1 mm long; **sepals** yellow, sometimes with purple stripes, glabrous within, puberulent externally, the middle sepal narrowly ovate, acute, 6-12 mm long, 2.25-3 mm wide, 3-veined, the lateral sepals elliptical, oblique, acute, apiculate, 5.75-12 mm long, 2-3.5 mm wide, 3-veined, connate 2-4 mm to near the middle; **petals** translucent, hastate-subquadrate, shortly acuminate, acute, minutely erose, 2.5-4 mm long, 2-2.5 mm wide, 1-veined; **lip** 3-lobed, unguiculate, 3-4 mm long including the claw, 1-2 mm wide, the blade ovate, rounded and convex at the apex, with a pair of small, rounded, erect lobules below the middle at the base of the claw, the disc shallowly sulcate between a pair of carinae on the middle third, the claw broad, 0.5-1 mm long, with a capillary, capitate lobule at each cor-ner, hinged to the tip of the column-foot; **column** stout, 2-3 mm long, winged and erose at the apex, the anther and stigma ventral, the foot thick, 1.5 mm long.

DOMINICAN REPUBLIC: **Azua**: at Las Lagunas, alt. 790 m, *M. Fuertes 1961* (Holotype destroyed at B); along Guacara river, tributary of Bao River, alt. 1250 m, 5-9 Nov. 1968, *A.H. Liogier 13412* (Neotype here designated: AMES; Isoneotypes: NY, US), C. Luer illustr. 19031; Santiago Rodriguez: Sabaneta, 17 May 1958, *J. Jiménez 3694* (US); Sabaneta, Sabana de Inaje, 27 Apr. 1950 m, *C. Gonzalez 2029* (US); La Lomita, alt. 760 m, 7 Apr. 1955, *J. Jiménez 2926* (AMES, US); above Río Arriba del Norte, San Juan de la Maguana, alt. 700 m, 8 Apr. 1969, *A.H. Liogier 14698* (NY); along a stream near Cerro de Chacuey, Partido, alt. 150 m, 12 Oct. 1969, *A.H. Liogier 16448* (NY); in woods on banks of Bao River, Mata Grande, alt. 700 m, 13 Oct. 1968, *A.H. Liogier 13308* (NY).

This unique species is endemic in a small area of the western mountains of the Dominican Republic. It is characterized by a sessile leaf with a large, foliaceous spathe at the base. The non-resupinate flowers are borne in a strict, simultaneously

several-flowered raceme. The sepals are fleshy and puberulent externally; the lateral sepals are semiconnate; the petals are abruptly short-acuminate with erose margins; and the obovoid lip is glabrous with a rounded, convex apex, with erect, marginal lobules below the middle, and a slender, capitate lobule at each corner of the base. These characters occur in unrelated infrageneric taxa, but this combination in one species is unusual.

Among the collections seen, two sizes are readily noted. A large variation with sepals 12 to 13 millimeters long was described by Schlechter. A practically identical, small variation with more flowers, and sepals only six millimeters long occurs with equal frequency.

Three pleurothallid subgenera characterized by a raceme subtended by a large spathe were treated in *Icones Pleurothallidinarum* - 16. Only in some of the species of subgenus *Crocodeilanthe* are the spathe and raceme produced from the base of the leaf. A few species of subgenus *Dracontia* are also distinguished by a conspicuous spathe (including the sympatric *P. oblongifolia*), but in these the leaf is petiolate with the spathe arising from the ramicaul. In none of the above is the lip similar to that of *P. miguelii*. A fleshy lip with a lobule at the corners of the base occurs in subgenera *Acianthera* and *Specklinia*, and the genus *Trichosalpinx*, but only in subgenus *Acianthera* is the habit, excluding the spathe, similar with the ramicaul well-developed without lepanthiform sheaths.

Pleurothallis miqueliana (Focke) Lindl., Folia Orch. *Pleurothallis* 17, 1859.

Ety.: Named in honor of Friedrich Anton Wilhelm Miquel, botanist at Utrecht, The Netherlands.
Bas.: *Specklinia miqueliana* Focke, Tijdschr. Wis-Natuurk. Wetensch. 2: 199, 1899.

Syn.: *Stelis miqueliana* (Focke) Lindl., Folia Orch. *Pleurothallis* 17, 1859.

Syn.: *Pleurothllis fimbriata* Lindl., Folia Orch. *Pleurothallis* 17, 1859.
Ety.: From the Latin *fimbriatus*, "fimbriate," referring to the petals.

Syn.: *Humboldtia fimbriata* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.
Syn.: *Humboldtia miqueliana* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis longisepala* Barb.Rodr., Vellosia, ed. 2, 115, 1891.
Ety.: From the Latin *longisepalus*, "with long sepal," referring to the dorsal sepal.
Syn.: *Acianthera miqueliana* (Focke) Pridgeon & M.W.Chase, Lindleyana 16: 244, 2001.

Plant small, epiphytic, repent, the rhizome slender, 0.5-2 cm between ramicauls; roots slender. Ramicauls erect, slender, terete, 2-9 cm long, with 2-3 tubular sheaths about the base. **Leaf** erect to suberect, coriaceous, narrowly ovate, acute, 2-4 cm long, 0.5-1 cm wide, the base cuneate, sessile. **Inflorescence** a single flower (uncommonly followed by a second) borne by a peduncle 1.5-2.5 mm long, with a spathe ca. 2 mm long at the base of the leaf; floral bract 1 mm long; pedicel 1.5 mm long; ovary 0.5 mm long; **sepals** tan with purple veins, glabrous, fleshy, the dorsal sepal linear-oblong, subacute or obtuse, thickened toward the apex, 5.5-7 mm long, 1 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into an ovate, subacute, biapiculate lamina, concave toward the base, 4-5 mm long, 3-3.5 mm wide, easily separated, 6-veined; **petals** translucent tan, obovate, acute, 1.8-2 mm long, 0.5 mm wide, 1-veined, with the margins minutely serrate above the middle; **lip** red-purple, thick, oblong-trilobed, 3-4 mm long, 1.8-2 mm wide, minutely denticulate, the apex rounded, minutely verrucose, the lateral lobes erect, obtuse, about the basal quarter, the disc with a thick, erect pair of intramarginal, tall, verrucose carinae through the center two-thirds, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** longitudinally winged, toothed at the apex, 2.5 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

GUYANA: Near Panuré, Caatingas, Río Maupés, Oct. 1852-Jan. 1853, *R. Spruce 2459* (holotype of *P. fimbriata*: K; isotypes: AMES, BR, P, W); Lower Amazon, banks of Jauari, 22 Nov. 1873, *J.W.H. Traill 817* (K); New-Arapiakru, 30 Sept. 1897, *E.F. im Thurn 182* (K); Bartica-Potaro road, 17 Aug. 1937, *N.Y. Sandwith 1106* (AMES, K).
FRENCH GUYANA: Kamoa River, alt. 260 m, 19 Sept. 1989, *M.J. Jansen-Jacobs et al. 1697* (K, U).
SURINAME: trees of *Crescentia*, Rio Pará, Apr. 1853, *C. Focke fig. 63* (Holotype: W);

VENEZUELA: **Amazonas**: Cerro Yapacana, alt. 125 m, 31 Dec. 1930, *B. Maguire, R.S. Cowan, J.J. Wurdack 30512* (AMES, NY).
BRAZIL: **Pará**: Mato Grosso: Alto Araguaia, Rio Claro, 15 Feb. 1975, *G. Hatschbach 36205* (C); Compas, Pará, *Wullschlaegel 1586* (W); without collection data, *Burchell 9405* (K).
ECUADOR: **Napo**: Río Largato Cocha, flooded forest, alt. 190 m, 11 June 1983, *J.E. Lawesson, T. Laessøe & P.M. Jørgensen 44254* (AAU, QCA).
PERU: **Loreto**: vicinity of Iquitos, alt. 100 m, 3-11 Aug. 1929, *E.P. Killip & A.C. Smith 26998* (AMES, US); same area, July 1937, *G. Klug 10126* (AMES); Gamitanacocha, Río Mazán, alt. 100-125 m, 3 Feb. 1935, *J.M. Schuncke 162* (AMES, K, US).

This species is widely distributed at low altitudes across northern South America and the Andes. It is recognized by the long, repent rhizome; slender, erect ramicauls with narrowly ovate leaves; and a single flower with a characteristic, proportionately long, narrow, dorsal sepal. The central calli of the lip are tall and verrucose.

Pleurothallis morilloi Carnevali & I. Ramírez, Novon 3: 119, 1993.
Ety.: Named for Gilberto Morillo, former curator at VEN.

Plant small, epiphytic, long-repent; rhizome slender, ca. 1 cm long between ramicauls; roots slender. Ramicauls slender, ancipitous above, ascending, suberect, 1.1-2.2 cm long, probably with a sheath. **Leaf** more or less spreading, coriaceous, elliptical-ovate, subacute, 2.3-3.2 cm long, 1-1.7 cm wide, cuneate below into the sessile base. **Inflorescence** 1-3, single to successively 3-flowered racemes, probably 1-2 cm long including the peduncle, sometimes with 2 simultaneous flowers, sometimes cleistogamous, the inflorescence 2-2.5 mm long, from the base of the leaf; floral bracts 0.5 mm long; pedicel and ovary together ca. 2.3 mm long, 6-ribbed; **sepals** greenish yellow, rigid, subfleshy, carinate, apparently glabrous, the dorsal sepal elliptical-oblong, acute, 4 mm long, 0.9-1 mm wide, 3-veined, the lateral sepals semi connate into an ovate, concave, bifid synsepal, 3.5 mm long, each lateral sepal 1.3 mm wide, 3-veined, acute; **petals** hyaline, linear-oblong, subacute, minutely serrulate above the middle, 2.3 mm long, 0.4 mm wide, 1-veined; **lip** greenish white, "membranous," elliptical-ovate, concave, without callus, 2.5 mm long, 1.3-1.5 mm wide, the apex rounded to broadly obtuse, minutely erose, the basal margins erect, the base unknown; **column** slender, 2 mm long, with 2 small apical wings.

VENEZUELA: **Táchira**: Río San Buena, east of La Fundacíon, around Represa Dorada, alt. 700-1000 m, 13-14 Mar. 1980, *Liesner, Gonzales & Smith 9535* (Holotype: VEN; Isotype: MO). **Bolívar**: Río Aonda (Auyántepui), alt. ca. 300 m, Mar. 1969, *G.C.K. Dunsterville 1108* (AMES).

This small, long-repent species is incompletely known. No usable floral material of the isotype remains at MO, nor of the Dunsterville paratype at AMES. The above description was made from the published description and Dunsterville's illustration. The fleshy, carinate sepals and hyaline petals are not unusual for the subgenus, but, if true, a membranous lip without calli is unique in the subgenus.

Pleurothallis moronae Luer & Hirtz, Lindleyana 11: 171, 1996.
Ety.: Named for the remote community of Morona near where this species was discovered.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 3-6 cm long, laterally compressed in the upper third, with a thin, tubular sheath on the lower quarter and 1-2 sheaths at the base. **Leaf** spreading to suberect, fleshy, coriaceous, ovate, acute, 4.5-5.5 cm long, 1.5-2 cm wide, cuneate into the sessile base. **Inflorescence** a simultaneously 3- to 6-flowered raceme, 1.5-2 cm long including the peduncle 1 cm long, borne on top of the leaf, subtended by a spathe 5-7 mm long from the apex of the ramicaul; floral bracts 2.5 mm long; pedicels 1 mm long; ovary 1.5 mm long; **sepals** fleshy, the dorsal sepal green with 3 purple stripes, obovate with revolute margins above the middle, obtuse, thickened and verrucose above the middle, 5 mm long, 1.5 mm wide, 3-veined, the lateral sepals connate into an ovate, obtuse, bifid lamina, 5 mm long, 3.5 mm wide, 6-veined, verrucose above the middle; **petals** translucent green, spathulate, broadly obtuse, minutely denticulate, 1.75 mm long, 1 mm wide, 1-veined; **lip** dark purple, thick, ovoid-trilobed, 2.25 mm long, 1.4 mm wide, the apex broadly rounded, denticulate, verrucose, the sides (or lateral lobes) obtuse, retrorse, erect, below the middle, the disc with a pair of parallel, verrucose carinae on the middle third, and with a pair of smooth, converging calli below the middle, the base subtruncate, delicately hinged to the tip of the column-foot; **column** broadly winged above the middle, 2.5 mm long, subdenticulate at the apex, the foot 2 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, forest along the new road between Mendez and Morona, alt. 950 m, 18 Jan. 1989, *C. Luer, J. Luer, P. Jesup, A. Jesup, A. Hirtz & S. Ortega 13998* (Holotype: MO).

This species from the Cordillera del Cutucú of southeastern Ecuador is closely allied to *P. lojae*. It is distinguished from the variations considered within that species by ovate instead of elliptical leaves; sepals more verrucose within; spathulate, broadly obtuse petals, instead of obovate and acute; and a thick, markedly verrucose lip with obtuse, retrorse lateral lobes.

Pleurothallis obscura A.Rich. & Galeotti, Ann. Sci. Nat. ser. 3, 3: 17, 1845.

Ety.: From the Latin *obscurus*, "indistinct, obscure," referring to the small flowers.

Syn.: *Pleurothallis bilamellata* Rchb.f., Linnaea 22: 830, 1849.

Ety.: From the Latin *bilamellatus*, "bilamellate," referring to the bicallous labellum.

Syn.: *Humboldtia bilamellata* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis rufa* Rolfe, Bull. Misc. Inform. 192, 1898.

Ety.: From the Latin *rufus*, "reddish," referring to the reddish brown flowers.

Syn.: *Acianthera obscura* (A.Rich. & Galeotti) Pridgeon & M.W.Chase, Lindleyana 16: 245, 2001.

Plant medium in size, epiphytic, shortly repent to caespitose, the rhizome thick, to 5 mm long between ramicauls; roots slender. Ramicauls ascending, erect, slender to stout, slightly compressed and sulcate above, 4-10 cm long, with a tubular sheath below the middle and 2-3 sheaths about the base. **Leaf** erect, thickly coriaceous, narrowly linear-elliptical, narrowly obtuse to subacute, 6-11 cm long, 0.9-1.2 cm wide, narrowly cuneate below, sessile. **Inflorescence** a congested, distichous, simultaneously 2- to 3-flowered raceme, ca. 1 cm long including the peduncle ca. 1 mm long, borne at the base of the leaf, with a deciduous spathe 1.5-2.5 cm long; floral bracts thin, infundibular, 2 mm long; pedicels stout, 1-1.5 mm long; ovary microscopically pubescent, 1.5 mm long; **sepals** orange, thickly fleshy, microscopically pubescent or subverrucose externally, the dorsal sepal elliptical, obtuse, more or less recurved above the middle, 3.5-4.5 mm long, 1.75 mm wide, 3-veined, connate to the lateral sepals ca. 1 mm, the lateral sepals lightly adherent into a broadly elliptical, concave, shortly bifid synsepal, 3-4 mm long, 3.5 mm wide, 6-veined; **petals** translucent orange, elliptical-oblong, subacute to obtuse, minutely irregular-subserrate, 1.75-2 mm long, 1 mm wide, 1-veined; **lip** heavily suffused with dark purple-brown, thick, oblong-subtrilobed, 2-2.3 mm long, 1-1.5 mm wide, the apex rounded, minutely verrucose, the lateral lobes subacute to rounded, below the middle, the disc with a thick pair of parallel, verrucose carinae on the middle third anterior to the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** winged above the middle, toothed at the apex, 1.75-2 mm long, the foot thick, less tha 1 mm long, the anther and stigma ventral.

MEXICO: without locality, *A. Richard & Galeotti s.n.* (Holotype: P?); without locality, *A. Richard & Galeotti s.n.* (holotype of *P. bilamellata*: W); without locality, 1841, *F. Liebmann 7302* (C); without collection data, flowered in cultivation, 14 June 1890, by *Seeger & Tropp s.n.* (holotype of *P. rufa*: K); without collection data, flowered in cultivation, St. Albans, Feb. 1896, imported from Mexico by *F. Sander s.n.* (K). **Veracruz**: Zacupan, 1906, *C.A. Purpus 8* (BR); Zacuapan, alt. ca. 900 m, 1 May 1934, *C.A. Purpus 2913* (AMES); Near Almolonga, east of Jalapa, alt. 900 m, 5 Apr. 1985, *Juan G. 4694* (AMES); near Córdoba, alt. 820 m, 1 Apr. 1935, *O. Nagel 4595* (AMES); Fortín, cultivated at SEL, 15 Feb. 1982, *C. Luer 6835* (SEL). **San Luis Potosí**: Tamasopo to Cebadilla, alt. 500 m, 25 June 1937, *O. Nagel 5093A* (AMES). **Chiapas**: bluffs near Piedra Pasada, vicinity of Ocozacuantla, 11 Apr. 1947, *H.E. Moore 2547* (AMES).

This species is apparently confined to the mountains of southern Mexico. It is characterized by a slightly compressed ramicaul with a thick, narrow, equally long leaf. The few, small, fleshy, orange to brown flowers are produced in a very short, congested raceme at the base of the leaf. The lip is thick with a pair of verrucose calli near the middle.

Pleurothallis odontotepala Rchb.f., Flora 48: 275, 1865.

Ety.: From the Greek *odontotepalon*, "toothed tepals," referring to the sepals and petals.

Syn.: *Pleurothallis brachypetala* Griseb., Cat. Pl. Cuba 257, 1866.

Ety.: From the Greek *brachypetalon*, "short petal," referring to the petals.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, 1-3 cm long, enclosed below the middle by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical-ovate, subacute to acute, 1.5-4.5 cm long, 0.8-1.8 cm wide, cuneate below into the sessile base. **Inflorescence** an erect, nearly simultaneously 2- to

3-flowered raceme, 5-10 mm long, including the peduncle 3-5 mm long, subtended by a spathe 4-7 mm long, from the apex of the ramicaul at the base of the leaf; floral bracts oblique, acute, 2-2.5 mm long; pedicels 1-2 mm long; ovary 1-2 mm long, or swollen to 10 mm long; **sepals** dark purple, fleshy, glabrous, the dorsal sepal oblong, subacute, subverrucose within toward the apex, 4-5.5 mm long, 1.5-1.8 mm wide, 3-veined, connate to the laterals for 2 mm, the lateral sepals connate to near the apex into a concave, ovoid to suborbicular, obtuse, bifid synsepal, 4-4.5 mm long, 4-5 mm wide expanded, 6-veined, forming a conspicuous mentum with the column-foot; **petals** translucent, oblong-obovate, subacute, minutely erose above the middle, 2 mm long, 0.8-1 mm wide, 1-veined; **lip** purple, fleshy, obscurely trilobed, 3-3.25 mm long, 1.5-1.75 mm wide unexpanded, the apex rounded, verrucose, with minutely erose margins, the lateral lobes below the middle, erect, obtuse, the disc shallowly channeled between a pair of verrucose calli extending forward from within the lateral lobes, broadly unguiculate and fleshy below the lobes, the base truncate, hinged to the column-foot; **column** semiterete, 2-2.5 mm long, becoming thick with swelling of the ovary, the foot 1.5 mm long, the anther and stigma ventral.

CUBA: Oriente: 1860-64, *C. Wright 3349* (Holotype of *P. odontotepala*: K; isotype: AMES; illustration at W, also holotype of *P. brachypetala*: K; isotype: AMES); Orientale, as "discoidea," *C. Wright s.n.* (K); Rungel, 9 June, *C. Wright s.n.* (AMES); Monteverde, *C. Wright s.n.* (AMES), C. Luer illustr. 19291; Sierra Maestra, Cueva del Aura, 30 July 1935, *J. Acuña & Bucher 9537* (HAJB, HAC); May 1948, *J. Acuña 22991* (HAC, HAJB); south of Pico Turquino, alt. 3,750 m, 31 July 1935, *Roig, Acuña & Bucher 6629* (AMES); Santiago de Cuba, Pico Turquino, *Y. Aubry s.n.* (MO), C. Luer illustr. 19375. Granma: Buey Arriba, Pico Verde, 21 May 1988, *A. Alvarez s.n.* (HCJB).
JAMAICA: without locality, Nov. 1881, *D. Morris 2277* (K); Mt. Moses, 3,500 ft., Nov. 1885, *D. Morris 2277* (K); Lancaster, alt. 2,500 ft., 28 Feb. 1900, *W. Harris 7852* (BM); near Mabess River, alt. 3,500 ft., 12 Apr. 1900, *W. Harris 9012* (BM); near Cinchona, alt. 4,500 ft., 7 Apr. 1908, *W. Harris 10501* (AMES, NY); Mabess River, alt. 2,000 ft., 25 July 1903, *G.E. Nichols 150* (NY), C. Luer illustr. 19023.
DOMINICAN REPUBLIC: **Santiago-Rodriguez**: Monción, near junction of Río Cenobi and Río Cenobicito, alt. 800 m, 18 June 1929, *E.L. Ekman 12891* (AMES, S).

This uncommon species is known from Cuba, Jamaica and Hispaniola. It is distinguished by the small, caespitose habit with ramicauls shorter than to nearly as long as the elliptical, sessile leaves. Two or three small, often cleistogamous, purple flowers are borne in a short raceme. The sepals are fleshy with the laterals forming a deep mentum with the column-foot. The petals are translucent and erose above the middle. The lip is obscurely trilobed below the middle with verrucose calli extending forward onto the verrucose apex.

Pleurothallis ofella Luer, Selbyana 7: 120, 1982.

Ety.: From the Latin *ofella*, "a little morsel," referring to the small habit.
Syn.: *Acianthera ofella* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 245, 2001.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, ascending to erect, 10-13 mm long, terete, with a thin, tubular on the lower half and 1-2 sheaths at the base. **Leaf** erect to suberect, thickly coriaceous, narrowly elliptical, acute, 25-30 mm long, 4-6 mm wide, cuneate into the sessile base. **Inflorescence** a simultaneously 2- to 3-flowered raceme, 5-8 mm long, borne on top of the leaf, subtended by a spathe 3-5 mm long from the base of the leaf; floral bracts 1.5 mm long; pedicels 1 mm long; ovary 0.75 mm long; **sepals** fleshy, yellow, marked with purple, the dorsal narrowly ovate, acute, thickened toward the apex, glabrous, 5 mm long, 1.5 mm wide, 3-veined, connate to the lateral sepals 1 mm, the lateral sepals connate into a suborbicular, concave lamina, 4 mm long, 3.5 mm wide, thickened and subverrucose above the middle, broadly obtuse or rounded at the minutely bifid apex; **petals** translucent yellow, obovate, acute, denticulate above the middle, 1.75 mm long, 0.75 mm wide, 1-veined; **lip** yellow, thick, elliptical, denticulate, 2.75 mm long, 1.25 mm wide, the apex obtuse, verrucose, the sides erect, obtusely angled below the middle, the disc with a pair of short, minutely denticulate carinae on the middle third near the margins, the base subtruncate with a "V-shaped" callus, hinged to the tip of the column-foot; **column** slender, 2 mm long, winged above the middle, minutely denticulate at the apex, the foot ca. 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Zamora-Chinchipe**: cloud forest between Loja and Zamora, alt. 1400 m, flowered in cultivation in Vilcabamba, 19 Nov. 1981, *D. D'Alessandro 108* (Holotype: SEL).

This species, apparently endemic on the eastern slope of the Andes east of Loja, is allied to the sympatric *P. lojae* complex, differing from the latter in the much smaller habit; fewer, smaller flowers; a dorsal sepal shortly connate to a concave, broad or suborbicular, obtuse synsepal; and a lip with a small pair of central calli.

Pleurothallis omissa Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 175, 1999.

Ety.: From the Latin *omissus*, "omitted," referring to the status of the species for Venezuela.

Syn.: *Acianthera omissa* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 245, 2001.

Plant small to medium in size, epiphytic, shortly repent, the rhizome 2-3 mm long between ramicauls, roots slender. Ramicauls erect, slender, 8-11 cm long, enclosed above the base by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute, sessile, 5-7 cm long, 1-1.3 cm wide, cuneate below into the base. **Inflorescence** a congested, 2- to 3-flowered raceme, ca. 5 mm long, borne by a slender, arching peduncle, 15-20 mm long, subtended by a spathe ca. 5 mm long, from the apex of the ramicaul at the base of the leaf; floral bracts 2 mm long; pedicel 0.5 mm long; ovary 1.25 mm long; **sepals** fleshy, glabrous, light brown, with the apices convex, very slightly subverrucose, the dorsal sepal oblong, obtuse, 5-5.5 mm long, 1.75-2 mm wide, with the 3 veins purple, connate 1 mm to the synsepal, the lateral sepals suffused with purple, connate to near the apex into an oblong, obtuse, shortly bifid synsepal, 5-5.5 mm long, 3.5 mm wide unexpanded; **petals** translucent brown, elliptical, acute, minutely fimbriate, 3 mm long, 1 mm wide, with the midvein purple; **lip** dark red-purple, fleshy, ovate-trilobed, unguiculate, broadly rounded at the apex, 3.5 mm long, 2 mm wide, with the margins serrate, with the lateral lobes above the claw, erect, rounded, the disc shallowly concave between a pair of low calli on the middle third, the base shortly unguiculate, bilobulate, hinged to the column-foot; **column** slender, semiterete, 2.5 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

VENEZUELA: **Amazonas**: Río Casiquiare, alt. ca. 500 ft., collected by D. Patrek, Aug. 1963, *G.C.K. Dunsterville 794* (Holotype: MO), C. Luer illustr. 19178.
ECUADOR: **Morona-Santiago**: near Pangui, alt. 1000 m, cultivated at Ecuagenera, Gualaceo, 7 July 2002, *A. Hirtz 8332* (MO), C. Luer illustr. 20227.

This species is apparently endemic in lowland, Amazonian Venezuela, in the region of Río Casiquiare where the Río Orinoco connects with the Río Amazonas. It was illustrated by Dunsterville but it was not incorporated into *Venezuelan Orchids Illustrated*, possibly because of its similarity to *P. fockei*. Vegetatively, the two species are similar with a short, crowded, few-flowered raceme borne by a considerably longer peduncle. The dorsal sepal of *P. fockei* is acute and considerably shorter than the synsepal, while the dorsal sepal of *P. omissa* is obtuse and as long as the synsepal. The margins of the sepals of both species are decurved from near the middle, and the margins of the petals of both species are minutely fimbriate. The lip of *P. fockei* is acute with erect, broadly rounded sides below the middle, while the lip of *P. omissa* is broadly obtuse at the apex, and with erect, marginal lobes below the middle above the unguiculate base.

Pleurothallis pantasmi Rchb.f., Bonplandia 3: 224, 1855.

Ety.: Named for Nicaraguan Mount Pantasmo where the species was first collected.

Syn.: *Humboldtia pantasmi* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Acianthera pantasmi* (Rchb.f.) Pridgeon & M.W.Chase, Lindleyana 16: 245, 2001.

Plant medium in size, epiphytic, shortly repent to caespitose; roots slender. Ramicauls slender, erect, 10-18 cm long, sharply 3-winged, gradually broader toward the leaf, 5-6 mm wide, with the apex slightly above the marginal junction between the ramicaul and leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, thinly coriaceous, narrowly ovate, acute, 3.5-8 cm long, 1-1.7 cm wide, sessile with the margins continuous with the wings of the ramicaul. **Inflorescence** a congested, simultaneously 2- to 4-flowered raceme, ca. 1 cm long including the peduncle ca. 0.5 cm long, from a spathe 5-6 mm long from the apex of the ramicaul; floral bracts 2-3 mm long; pedicels 1-1.5 mm long; ovary minutely short-pubescent, 1.5-2 mm long; **sepals** brown, fleshy, microscopically pubescent externally, tuberculate within above the middle, the dorsal sepal narrowly obovate, obtuse, 5 mm long, 2 mm wide, 3-veined, the lateral sepals connate into an elliptical, obtuse, bifid lamina with recurved margins, 4-5 mm long, 4 mm wide, 6-veined; **petals** orange-brown, ovate, acute, 2 mm long, 1 mm wide, 3-veined, with the margins microscopically serrulate above the middle; **lip** dark brown, thick, fleshy, oblong-trilobed, 2 mm long, 1.25 mm wide, the apex oblong, rounded, minutely serrulate, the lateral lobes below the middle, erect, rounded, the disc with a thick pair of parallel, subverrucose carinae on the middle third anterior to the marginal lobes, and with a cleft, basal callus, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** slender, 2 mm long, with conspicuous, descending, obtuse wings on the distal third, the foot 1 mm long, the anther, rostellum and stigma ventral.

NICARAGUA: **Jinotega**: Mt. Pantasmo, alt. 4,000 ft., Jan. 1848, *Oersted 553* (Holotype: W, Isotypes: AMES, K); without locality, Jan. 1848, *Oersted 7310* (C); Río Cua, alt. 1650 m, *A. Heller 1915* (SEL). **Chontales**: Río Micca, *A. Heller s.n.*. **Nueva Segovia**: coffee plantation near Jalapa, alt. 2,200 ft., *A. Heller 6107* (SEL).
HONDURAS: **Yoro**: Cascada de Río Guán Guán, alt. 400 m, 20 Apr. 1995, *T. Hawkins & M. Merello 778* (MO).
COSTA RICA: **Cartago**: 29 Mar. 1857, *H. Wendland 598* (W); Segovia, *Oersted s.n.* (W); without locality, ca. 1869, *A. Endres 18, 100(288)* (W); near Cartago, alt. 800-1500 m, 10 Jan. 1882, *F.C. Lehmann 1091* (BR); Dominical Ridge, McDiarmid, June 1973, flowered in cultivation 25 June 1975, *C. Luer 191* (SEL). **Limón**, Bajo Telire, Río Telire, alt. 400-600 m, July 1984, *L.D. Gómez 24122* (CR, MO); Talamanca Bribri, alt. 100 m, cultivated by J. García, San José, 16 Mar. 1995, *C. Luer 17403*
ECUADOR: **Pichincha**: Andes of Quito, *Spruce 6134* (W). **Esmeraldas**: between Lita and Alto Tambo, alt. 600 m, 15 June 1988, *A. Hirtz 3617* (K, MO). **Azuay**: Cordillera del Molleturo, epiphytic in wet forest above Río Shumiral, alt. 800 m, 27 Jan. 1992, *C. Luer, J. Luer, P. Jesup, A. Jesup & A. Hirtz 16191* (MO).

This species is locally frequent in Nicaragua, but less frequent in Costa Rica with a disjunct area of lowland, southwestern Ecuador. It is characterized by sharply winged ramicauls that bear considerably shorter leaves with which the margins of the leaf and wings of the ramicaul are continuous. A few, small, dark brown, fleshy, minutely pubescent flowers are borne in a short, congested raceme at the base of the leaf. The sepals are tuberculate within, and the petals are microscopically serrate. The lip is thick with a pair of central calli on the middle third, and above the bilobulate base a cleft callus.

Pleurothallis pantasmoides C.Schweinf., Bot. Mus. Leafl. 15: 98, 1951.

Ety.: Named for the similarity of the species to *P. pantasmi* Rchb.f.
Syn.: *Acianthera pantasmoides* (C.Schweinf.) Pridgeon & M.W.Chase, Lindleyana 16: 245, 2001.

Plant medium in size to large, epiphytic, very shortly repent to caespitose; roots slender. Ramicauls stout, erect, 5-23 cm long, terete below, becoming sharply 3-winged above, 5-8 mm wide, with the apex slightly above the marginal junction between the ramicaul and leaf, with 2-3 tubular sheaths at the base. **Leaf** erect, fleshy, coriaceous, narrowly elliptical-ovate, acute, 7-16 cm long, 2-3 cm wide, sessile with the margins decurrent ca. 5 mm onto the wings of the ramicaul. **Inflorescence** a congested, simultaneously 2- to 4-flowered raceme, ca. 2 cm long including the peduncle ca. 1 cm long, from a spathe 5-7 mm long from the apex of the ramicaul; floral bracts 4-6 mm long, enclosing pedicel and ovary; pedicels 1 mm long; ovary minutely short-pubescent, 1.5-3 mm long; **sepals** yellow-green or yellow-brown, dotted and suffused with darker brown, fleshy, minutely short-pubescent externally, minutely tuberculate within above the middle, the dorsal sepal obovate, obtuse, 8-13 mm long, 3.5-4 mm wide, 3-veined, the lateral sepals connate into a suborbicular, minutely bifid lamina, rounded at the apex, 8 mm long, 8 mm wide, to 6.5 mm long, 6.5 mm wide, 6-veined; **petals** translucent with purple-brown midvein, elliptical, acute, apiculate, 4-5 mm long, 2.25-2.75 mm wide, 1-veined, with the margins lacerate-serrulate above the middle; **lip** dark brown, thick, fleshy, oblong-trilobed, 4 mm long, 2.5-3.5 mm wide, the apex oblong, rounded, minutely serrulate, the lateral lobes below the middle, erect, rounded, the disc shallowly sulcate between a thick pair of parallel, subverrucose carinae on the middle third anterior to the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** slender below the middle, 3.5-5 mm long, with conspicuous, descending, obtuse wings on the distal third, the foot 2 mm long, the anther, rostellum and stigma ventral.

PERU: **Cuzco**: Paucartambo, Yanamayo-Tambomayo, alt. 1800 m, 4 May 1947, *C. Vargas 6499* (Holotype: AMES). **Amazonas**: Chachapoyas, Cerros Calla Calla above Leimebamba, alt. 2400 m, 26 Mar. 1964, *P.C. Hutchison & D.E. Bennett 4566* (AMES, UC).
ECUADOR: **Azuay**: around Mariviña between Cuenca and Nobon, alt. 2800-3100 m, Oct., H.K. 94, *F.C. Lehmann s.n.* (K). **Loja**: "Loja," ca. 1876, *E. André s.n.* (K); north of Loja, alt. 2700 m, 2 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12590* (MO); above Loja, alt. 2200 m, Apr. 2000, *J. Portilla 285* (MO). **Chimborazo**: between Cuyuja and Papallacta, alt. 2800-2900 m, 5 June 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 6866* (AAU). **Zamora-Chinchipe**: between Loja and Zamora, alt. ca. 2000 m, collected Jan. 1974 by W. Teague, cultivated Aug. 1979, *C. Luer 4116* (SEL).

This robust species, apparently confined to the mountains of Ecuador and northern Peru, is little more than a large variation of *P. pantasmi*. It differs from the latter with thickly coriaceous leaves about as long as the triquetrous ramicauls (instead of thin, proportionately shorter leaves); twice larger flowers with lacerate (instead of microscopically serrulate) petals; and a twice larger lip without the cleft callus above the base.

Pleurothallis papulifolia Luer, Lindleyana 14: 116, 1999.

Ety.: From the Latin *papulifolius*, "with papulose leaves," with obvious reference.

Plant small, epiphytic, densely caespitose, roots slender. Ramicauls slender, erect, 2-3 cm long, enclosed by 2 tubular sheaths below the middle. **Leaf** erect, thickly coriaceous, diffusely papular, elliptical, subacute, 17-20 mm long, 7-8 mm wide, the base cuneate, sessile. **Inflorescence** a sublax to congested, distichous, several, successively several-flowered raceme, with 2 to 3 flowers open simultaneously, 3-4 cm long including the peduncle ca. 1.5 cm long, more or less decurved near the middle, borne with a spathe 3 mm long at the base of the leaf; floral bracts infundibular, 1.5 mm long; pedicels 1 mm long; ovary 0.5 mm long, cellular-papillose; **sepals** (color unknown) glabrous, fleshy, subcarinate, the dorsal sepal elliptical-oblong, obtuse, apiculate, concave, 4 mm long, 1.5 mm wide, 3-veined, free from the lateral sepals, the lateral sepals oblong-ovate, obtuse, apiculate, 4 mm long, 1.5 mm wide, 3-veined, connate 2 mm to about the middle; **petals** membranous, ovate, acute, minutely serrulate, 2.25 mm long, 1.25 mm wide, 1-veined; lip thick, oblong-trilobed, 2.5 mm long, 1.3 mm wide, broadly rounded at the apex, with the lateral lobes small, rounded, below the middle with serrulate margins, the disc shallowly concave between a pair of low calli on the middle third, with minutely serrulate crests, the base truncate, minutely lobulate at the corners, hinged to the base of the column-foot; column broadly winged above the middle, erose at the apex, 2 mm long, the anther and stigma ventral, the foot 1 mm long.

CUBA: **Holguín**: Moa, entre el Alto de la Calinga y el Toldo Suelo Serpentina, 21 Apr. 1985, *Christina Paufet & Idelfonso Silva s.n.* (Holotype: HAJB), C. Luer illustr. 18666.

This species is apparently uncommon and endemic in the Oriente of Cuba. It is characterized by elliptical, sessile, minutely verrucose leaves and a more or less arching, congested raceme borne beyond the leaf. The pedicel and ovary are contained within the floral bract, bearing the flower against the rachis. The sepals are fleshy and obtuse; the petals are minutely erose; and the lip is thick and obtuse with erect, marginal lobes below the middle, a pair of thick, central calli, and a minutely bilobulate base.

Pleurothallis phoenicoptera Carnevali & Romero, Novon 4: 88, 1994.

Ety.: Named for the similarity of the unopened flower to the head of a flamingo (*Phoenicopterus*).

Plant small, epiphytic, shortly repent, the rhizome stout, 3-12 mm long between ramicauls; roots slender. Ramicauls slender and terete below, compressed above, 5 mm deep, descending to horizontal, 2-2.5 cm long, with a 1-2 tubular sheaths at the base. **Leaf** at a 90° angle with the ramicaul, rigidly coriaceous, concave, suffused with purple, ovate, subacute, conduplicate, 3.5-5.5 cm long, 3-4 cm wide expanded, rounded below at the sessile base. **Inflorescence** a single, pendent, flower, borne by a peduncle 2 mm long, at the base of the leaf; floral bract infundibular, 5 mm long; pedicel 7 mm long; ovary (fruit) 14 mm long, 7 mm wide; flowers cleistogamous; **sepals** yellow-green, fleshy, carinate, connivent, decurved, with the margins involute, the dorsal sepal narrowly linear-oblong, arcuate, semitubular, acute, 10-12 mm long, 1 mm wide unexpanded, the lateral sepals connate into a deeply concave, ovoid, obtuse synsepal, 9 mm long, 3 mm wide unexpanded; **petals** translucent, elliptical-ovate, acute, minutely denticulate, 2.5 mm long, 0.75 mm wide, 1-veined; **lip** subtrilobed, unguiculate, the blade elliptical, obtuse, fimbriate, 3 mm long, 1.5 mm wide, the disc with 3 longitudinal, minutely denticulate carinae, the middle carina continuing onto the claw as a thin lamella, the lateral carinae developed into thin, rounded lobes at the base of the blade, the claw deflexed, narrow, biauriculate at the base, hinged to the column-foot; **column** longitudinally winged, 2 mm long, denticulate at the apex, the anther, rostellum and stigma ventral, the foot thick, 1 mm long.

VENEZUELA: **Bolívar**: Cerro de la Piedra del Canaima, southeast of Santa Elena de Uairén, alt. 1250 m, Nov. 1982, *Carnevali & Pivat 1426* (Holotype: VEN), C. Luer illustr. 16311; Salto Toron between Luepa and Kavanayen, alt. ca. 1300 m, Jan. 1980, *G.C.K. Dunsterville 1411* (SEL). **Amazonas**: summit of Mount Duida, Savanna hills, alt. 4,400 ft., Aug. 1928- Apr. 1929, *G.H.H. Tate 823* (NY).

Apparently restricted to the Guyana Highlands of eastern Venezuela, this species is only slightly similar vegetatively to *P. prolifera*, a sympatric species widely distributed through Brazil and into Bolivia. *Pleurothallis phoenicoptera* is charracterized by more or less pendent leaves borne by horizontal ramicauls from a creeping rhizome. The rigid leaves are conduplicate and concave with the solitary, cleistogamous flower produced within the cavity. The flower illustrated was in an advanced stage of annthesis at the apex of a swollen ovary.

Pleurothallis phyllostachys Schltr., Repert. Spec. Nov. Regni Veg. Beih. 9: 76, 1921.

Ety.: From the Greek *phyllostachys*, "leafy spike," referring to the racemes borne above the base of the leaf.

Syn.: *Acianthera phyllostachys* (Schltr.) Pridgeon & M.W.Chase, Lindleyana 16: 245, 2001.

Plant large in size, epiphytic, shortly repent with the rhizome stout, 1-2.5 cm long between ramicauls; roots slender. Ramicauls stout, ascending to erect, 6-22 cm long, compressed and sharply 3-winged, broader toward the leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute, 7-15 cm long, 2.5-6.5 cm wide, with the base cuneate, decurrent on the ramicaul 2.5-4 cm. **Inflorescence** a congested, simultaneously several-flowered raceme, 3-4.5 cm long including the peduncle 1-1.5 cm long, borne in front of the leaf, subtended by a spathe ca. 1 cm long, from the apex of the ramicaul above the insertion of the leaf; floral bracts 3-4.5 mm long; pedicels 3-5 mm long; ovary 2-3 mm long; **sepals** yellow-green to orange, glabrous, the dorsal sepal oblong-obovate, obtuse, apiculate, thickened above the middle, 11-13 mm long, 3 mm wide, 3-veined, the lateral sepals connate into an elliptical synsepal, 10-11 mm long, 6-7 mm wide, 6-veined, the apex shortly bifid with the tips acute, apiculate; **petals** translucent, elliptical-obovate, acute to obtuse, serrate-fimbriate above the lower third, 4-5 mm long, 2 mm wide, 1-veined; **lip** yellow to orange, thick, oblong-subtrilobed, 5-6 mm long, 2.5-3 mm wide, the apex rounded, verrucose, minutely serrate, the lateral lobes below the middle, erect, broadly rounded, the disc shallowly channeled between a pair of low, thick, verrucose calli on the middle third, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** semiterete, shallowly winged, minutely denticulate at the apex, 3-4 mm long, the foot thick, 2 mm long, the anther, rostellum and stigma ventral.

PERU: **Piura**: Huancabamba, east of Huancabamba, alt. 2500 m, Apr. 1912, *A. Weberbauer 6313* (Holotype presumably destroyed at B; Lectotype here designated: AMES). **Amazonas**: Bongará, Sipabamba, Quebrada Fortuna, alt. 1300 m, 5 May 1981, *K. Young & M. Eisenberg 317* (MO). **Cajamarca**: Chota, Llama-Huambos, forest above Huarimarca, alt. 3000 m, 18 Mar. 1997, *A. Sagástegui & S. Leiva 15990* (F, HAO, MO). **Junín**: Yaupe, alt. 1580 m, 2 July 1861, *F. Woytkowski 6402* (MO).
ECUADOR: **Pichincha**: west slope of Pichincha, alt. 8,000 ft., *W. Jameson 33* (K); *W. Jameson 55* (W); Tandayapa, alt. 2000 m, Sept. 1984, *A. Hirtz 1892* (MO). **Imbabura**: Apuela road, cultivated at SEL, 19 Mar. 1979, *C. Luer 4037* (SEL). **Napo**: above Baeza, 1976, collected by H. Ripley, cultivated in San Francisco, CA, *C. Luer 4087* (SEL); Río Topo, alt. 1300 m, *A. Hirtz 1840* (MO); above Baeza toward Quito, alt. 1840 m, 30 June 1986, *C.H. Dodson & T.A. Dodson 16536* (MO). **Chimborazo**: Río Chasuan, *R. Spruce 6131* (W). **Bolívar**: between Guaranda and Catarama, alr. 1200 m, July 1991, cultivated in Chamblee, GA, *F L Stevenson 92-0530-2* (MO). **Loja**: north of pass south of Jimbura, alt. 2600 m, 21 Feb. 1986, *C. Luer, J. Luer, A. Hirtz & A. Embree 11988* (MO). **Zamora-Chinchipe**: upriver from Valladolid, Río Yambala, alt. 1650 m, 10 Apr. 1986, *D. D'Alessandro 521* (MO): north of Valladolid, alt. 2100 m, 19 May 1986, *D. D'Alessandro 679* (MO); between Loja and Zamora, collected by Monika Navarro, cultivated in Quito, 20 Feb. 1998, *C. Luer 18759* (MO).
PERU: **Piura**: Huancabamba, Hda. Chantaco, east of Huancabamba, alt. 2500 m, *A. Weberbauer 6313* (fide C. Schweinfurth).
BOLIVIA: **La Paz**: Larecaja, near Sorata, Monte Chilieca, alt. 2700 m, Mar.-June 1860, *G. Mandon 1130* (BR, K); Nor Yungas, north of Caranavi toward Alto Beni, alt. 1550 m, 26 Jan. 1988, *C. Luer, J. Luer, J. Solomon & R. Vásquez 12930* (MO).
COLOMBIA: **Antioquia**: El Jardin, cultivated by Colomborquídeas, 10 Apr. 1988, *C. Luer 13151* (MO). *Cundinamarca*: above Guttierez, alt. 2700 m, 19 May 1984, *C. Luer, J. Luer & R. Escobar 10371* (MO). **Cauca**: Alto de Pesares, above Popayán, alt. 2400-2900 m, *F.C. Lehmann 7100* (K, W).

This species, described from Peru, is closely related to the frequent and variable *P. casapensis*. It is little more than a large, robust, vegatative variation. The stout, creeping rhizome produces erect, triquetrous ramicauls that bear large, erect, elliptical leaves with sides that are long-decurrent on the ramicaul. Consequently, the inflorescence emerges well above the base of the leaf.

Except for their larger size, the flowers are morphologically similar. They are also yellowish green to yellow, becoming orange with age. The dorsal sepal is thickened toward the obtuse apex. The lateral sepals are connate into a shortly bifid lamina. The small petals are fimbriate. The lip is thick, obtuse, minutely denticulate, with broadly rounded, erect, lobelike margins below the middle and with a pair of verrucose calli on the middle third of the disc.

Pleurothallis prognatha Luer & Escobar, Orquideología 16: 30, 1983.

Ety: From the Greek *prognathos*, "having a protrusive jaw," in allusion to the "bull dog" appearance of the flowers.

Syn.: *Acianthera prognantha* (Luer & Escobar) Pridgeon & M.W.Chase, Lindleyana 16: 245, 2001.

Plant medium in size, epiphytic, shortly repent, 0.3-1 cm between ramicauls; roots slender. Ramicauls suberect to horizontal, winged above, terete below, 6-11 cm long, with a tubular sheath below the middle and at the base. **Leaf** spreading, thickly coriaceous, elliptical, 6-10 cm long, 2-3 cm wide, the apex obtuse to rounded, the base cuneate, decurrent on the ramicaul for 1-1.5 cm. **Inflorescence** a congested, distichous, simultaneously few-flowered raceme, 3-3.5 cm long, prostrate upon the leaf, from a 5 mm long spathe at the apex of the ramicaul imbedded within the base of the leaf; floral bracts translucent, 3 mm long; pedicel 1 mm long; ovary 1.5 mm long, shortly pubescent; **sepals** orange, rigid, fleshy, shortly pubescent externally, the margins erose, the dorsal sepal obovate, 9 mm long, 6 mm wide near the truncate apex with 1 mm long apiculum, verrucose within, the lateral sepals connate into a subquadrate lamina 9 mm long, 7 mm wide, the base forming a mentum with the column-foot, the truncate apices each with a 1.5 mm long apiculum, the inner margins of the apices grasping the apex of the dorsal sepal so that the apiculum of the dorsal sepal and the apicula of the lateral sepals point in opposite directions; **petals** spathulate, 3 mm long including the 1.5 mm long claw, the distal half more or less oblong, long-fimbriate, 1.5 mm wide not including the fimbria; **lip** obovate, subacute, 7 mm long, 3.5 mm wide, with broadly rounded, erect margins below the middle, verrucose within and without, the base rounded, hinged to the column-foot; **column** semiterete, 3 mm long, the apex denticulate, the foot 3 mm long, thick, channeled.

COLOMBIA: **Norte de Santander**: Munic. of Toledo, epiphytic in cloud forest between Alto del Oro and Alto de Santa Inés, alt. 1750 m, 24 May 1982, *C. Luer, R. Escobar & D. Portillo 7918* (Holotype: SEL; Isotypes: COL, JAUM).
VENEZUELA: **Táchira**: Cazadero, Quebrada Cazadero, northwest of San Cristobal, alt. 650-900 m, 4 May 1991, *Liesner & Guariglia 11794* (MO, VEN).

This species, found in easternmost Colombia and adjacent westernmost Venezuela, is characterized by a congested raceme of orange flowers lying upon a thick, elliptical leaf. The sepals are long-apiculate, that of the dorsal sepal held between those of lateral sepals. With the margins of the sepals recurved, lateral openings into the flower are created, reminiscent of a species of *Zootrophion*. The long-lacerate petals and verrucose lip are visible through the windows.

Pleurothallis prolifera Herb. ex Lindl., Edwards's Bot. Reg. 15: t. 1298, 1829.

Ety.: From the Latin *prolifer*, "producing offshoots," referring the unusual production of a leaf with the flowers.

Syn.: *Humboldtia prolifera* (Herb. ex Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis lithophila* Barb.Rodr., Contrib. Jard. Bot. Rio de Janeiro 4: 100, 1907.

Ety.: From the Greek *lithophilos*, "rock loving," referring to a lithophytic habitat.

Syn.: *Acianthera prolifera* (Herb. ex Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 245, 2001.

Plant medium in size, epiphytic, lithophytic to terrestrial, shortly repent, the rhizome stout, 0.5-2 cm long between ramicauls; roots slender. Ramicauls ascending, erect, compressed and channeled above the middle, 4-15 cm long, with close, tubular sheath below or near the middle, and 2-3 others at the base. **Leaf** spreading to decurved, rigidly coriaceous, elliptical or ovate, concave, acute, 5-14 cm long, 2-6 cm wide, with the base cuneate, rounded or cordate. **Inflorescence** a congested, distichous, simultaneously few- to several-flowered raceme, 1.5-3 cm long including the peduncle 0.5-1 cm long, several flowers open simultaneously, subtended by a spathe ca. 5 mm long, from the apex of the ramicaul at the base of the leaf; floral bracts 2-3 mm long; pedicels 2-4 mm long; ovary cellular, 1-1.5 mm long; **sepals** red-purple, or cream mottled, flecked or spotted with purple, cellular-glandular within, the dorsal sepal oblong, subacute, 5-8 mm long, 3 mm wide, 3-veined, the lateral sepals lightly connate into a broadly elliptical synsepal, 4.75-8 mm long, 3.75-6 mm wide, 6-veined, the apex bifid with the apices acute; **petals** translucent, purple or spotted with purple, elliptical, acute, narrowed below the middle, denticulate above, 2.5-5 mm long, 0.6-1 mm wide; **lip** spotted or suffused with purple, thick, oblong-subtrilobed, 2.75-5 mm long, 1-2 mm wide, the apex obtuse, verrucose, minutely denticulate, the lateral lobes below the middle, small, erect, fimbriate, the disc shallowly channeled between a pair of parallel, denticulate calli on the middle third, the base truncate, with a minute lobe at the angles, hinged to the column-foot; **column** semiterete, 3-4 mm long, denticate at the apex, the foot thick, 1.5-2 mm long, the anther, rostellum and stigma ventral.

BRAZIL: **Rio de Janeiro**: Serra das Orgâos, Mandioca, Aug. 1817, *Martius 49* (Holotype: M; Isotype: BR). Without collection data, ca. 1873, **Keferstein 52** (W); without collection data, many cultivated specimens (K). **Dist. Fed.**: Rio Tijuca, Sept. 1949, *G. Pabst 382* (AMES, HB).
GUYANA: without more specific data, obtained from Thompson, May 1967, cultivated by P. Jesup, in flower 29 Sept. 1991, *C. Luer 15474* (MO).
BOLIVIA: **La Paz**: Nor Yungas, roadside above Yolassa, alt. 1500 m, 27 Jan. 1983, *C. Luer, J. Luer & R. Vásquez 9348* (SEL).

Widely distributed through Brazil into Bolivia and the Guianas, *P. prolifera* is characterized by a compressed ramicaul and a more or less deflexed, sessile, thickly coriaceous, concave-conduplicate leaf. The usually dark red-purple flowers are borne within the cavity on a short, congested raceme. The size and colors of the flowers are variable. It is illustrated in Curtis's *Botanical Magazine*, plate 1908. In his original description, Lindley noted the leaf as "prolifero," but this was apparently retracted in his *Folia Orchidaceae Pleurothallis*, where it was not mentioned. A prolific leaf occurs occasionally in normally single-leaved species.

Pleurothallis prolifera grows locally and abundantly among rocks and in full sun, the leaves becoming thickly rigid, deeply conduplicate, and dark red-purple. When it grows epiphytically in shaded habitats, the leaves do not become as deeply concave or pigmented, if at all.

Pleurothallis pubescens Lindl., Comp. Bot. Mag. 2: 355, 1836.
Ety.: From the Latin *pubescens*, "pubescent," referring to the sepals.

Syn.: *Pleurothallis polystachya* A.Rich. & Galeotti, Ann. Sc. Nat. ser. 3, 3: 16, 1845.
Ety.: From the Greek *polystachys*, "many spikes," probably referring to the ramicauls.?

Syn.: *Pleurothallis vittata* Lindl., Edwards's Bot. Reg. 24: Misc. 73, 1838.
Ety.: From the Latin *vittatus*, "longitudinally striped," referring to the sepals.

Syn.: *Pleurothallis smithiana* Lindl., Edwards's Bot. Reg. 29: Misc. 57, 1843.
Ety.: Named for Herbert Huntington Smith, American naturalist, who collected this species.

Syn.: *Pleurothallis truxillensis* Rchb.f., Bonplandia 2: 25, 1854.
Ety.: Named for the community of Trujillo, near where the species was collected.

Syn.: *Pleurothallis bufonis* Klotzsch, Allg. Gartenzeitung 22: 225, 1854.
Ety.: From the Latin *bufonis*, "like a toad," referring to the flower.

Syn.: *Pleurothallis rio-grandensis* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 28, 1882.
Ety.: Named for the Rio Grande where the species was collected.

Syn.: *Pleurothallis janeirensis* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 29, 1882.
Ety.: Named for the state of Rio de Janeiro where the species was collected.

Syn.: *Pleurothallis rio-grandensis* var. *viridicata* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 30, 1882.
Ety.: From the Latin *viridicatus*, "made green," referring to the leaves.

Syn.: *Pleurothallis coriacea* Bello, Anal. Soc. Esp. Hist. Nat. 12: 116, 1883.
Ety.: From the Latin *coriaceus*, "coriaceous," referring to the leaves.

Syn.: *Humboldtia polystachya* (A.Rich. & Galeotti) Kuntze, Rev. Gen. Pl. 2: 668, 1891.
Syn.: *Humboldtia pubescens* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.
Syn.: *Humboldtia smithiana* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.
Syn.: *Humboldtia truxillensis* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.
Syn.: *Humboldtia vittata* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.
Syn.: *Humboldtia bufonis* (Klotzsch) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis mandibularis* Kraenzl., Vidensk. Medd. Nat. Copenhagen 71: 169, 1920.
Ety.: From the Latin *mandibularis*, "jaw-like," referring to the two calli of the labellum.

Syn.: *Pleurothallis porphyrantha* Kraenzl., Arkiv. Bot. Stockh. 16(8): 10, 1921.
Ety.: From the Greek *porphyranthos*, "purple-flowered," referring to the inflorescence.

Syn.: *Pleurothallis bourgeaui* Kraenzl., Arkiv. Bot. Stockh. 16(8): 15, 1921.
Ety.: Named for M. Bourgeau who collected the species in Mexico.
Syn.: *Acianthera pubescens* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 245, 2001.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls relatively stout, channeled, erect, suberect to horizontal, 3-8 cm long, enclosed by a tubular sheath below the middle and 2-3 sheaths at the base. **Leaf** more or less horizontal, suffused with purple, thickly coriaceous, elliptical, obtuse to subacute, 4-11 cm long, 1.5-3 cm wide, cuneate below at the sessile base. **Inflorescence** a congested, distichous, simultaneously several-flowered raceme, 3-5 cm long, including the peduncle ca. 1 cm long, borne from a spathe 1-1.5 cm long at the base of the leaf; floral bracts 3-4 mm long; pedicels 1-3 mm long, microscopically pubescent; ovary 1.5-2 mm long, densely short-pubescent; **sepals** fleshy, minutely pubescent externally, glabrous within, white, spotted and striped with purple, the dorsal sepal narrowly oblong-obovate, subacute to obtuse, thickened above the middle, 8-13 mm long, 2.5-3.25 mm wide, the lateral sepals connate into an elliptical, bifid lamina, 8-11 mm long, 4-5.5 mm wide, the apices acute, in apposition; **petals** translucent, marked with purple, flabellate-obovate, denticulate, unguiculate, 2.25-3 mm long, 1.5-2 mm wide, broadly obtuse to rounded at the apex, apiculate, the claw ca. 0.5 mm long; **lip** spotted and suffused with dark purple, obovate-trilobed, thick, oblong, 2.5-3.25 mm long, 1.6-2 mm wide, the apex rounded, minutely denticulate, the margins erect below the middle with erect, antrorse, subacute to acute lobes, the disc shallowly concave medially between a pair of thick, carinae occupying the middle two-thirds of the lip; the base truncate, bilobulate, hinged to the column-foot; **column** semiterete, longitudinally winged, minutely denticulate at the apex, 2-3 mm long, the foot thick, 1.5 mm long, the anther, rostellum and stigma ventral.

Representative collections:
MEXICO: without collection data, received from *Mr. Barker s.n.* (Holotype: K): near Mirador, Aug. 1841, *F. Liebmann 7322* (orchid no. 124, 125, 126) (C). Without locality, *Loddiges s.n.* (holotype of *P. vittata*: K). Without locality, "Wahrscheinlich aus Mexico stammend," *F. Liebmann s.n.* (holotype of *P. mandibularis*: C). Without locality Apr. 1848, *Leibold s.n.* (W). region of Orizaba, 17 May 1869, *M. Bourgeau 2469* (holotype of *P. bourgeaui*: P; isotypes: AMES, K). **Vera Cruz**: without locality, 1840, *H. Galeotti 5135* (holotype of *P. polystachya*: W); Zacuapan, Aug. 1906, *C.A. Purpus 2142* (AMES). **Oaxaca**: San Felipe Mts, collected by George Kennedy 2005, cultivated at UC 57.419-1, 21 Sept. 1963, *P.C. Hutchison s.n.* (K, UC). **Chiapas**: Belém, Teopisca, cultivated 4 Mar. 1985, *E. Hágsater 4507* AMES, MEX).
GUATEMALA: **Peten**: vicinity of La Libertad, 12 May 1934, *M. Aguilar H. 334* (AMES).
HONDURAS: **Copán**: Quebrada Jaral, northeast of Santa Rita, alt. 700 m, 28 Aug. 1975, *Antonio Molina & Albertina Molina 30787* (F, MO). **Cortes**: near shore of Lake Yojoa, alt. 2,100 ft., 30 Sept. 1934, *T.G. Yunker 4867* (AMES).
NICARAGUA: **Nueva Segovia**: southeast of Jalapa, *Atwood, Marshall & Neill 6775* (AMES, F, MO); south of Jalapa, alt. 700 m, *A. Heller 6116* (SEL).
COSTA RICA: **Cartago**: Cuenca de Quebrada Honda between Virris and Naranjo, ca. 1867, *A. Endres 550* (W).
PANAMA: **Coclé**: between Margaritas and El Valle, 15 Juny 1938, *R.E. Woodson, P.H. Allen & R.J. Seibert 1282* (MO). **Panama**: Cerro Camana, 25 May 1971, *T.B. Croat 14764* (MO). Without locality, collected by A. Pridgeon, cultivated 14 Jan. 1981, *C. Luer 6326* (SEL).
COLOMBIA: **Santander**: dry forest north of San Gil, Loma La Cuchilla, alt. 1600 m, 6 May 1984, *C. Luer, J. Luer & R. Escobar 10156* (MO).
VENEZUELA: **Trujillo**, alt. 6,000 ft., Dec. 1850, *H. Wagener 31* (holotype of *P. truxillensis*: W); *H. Wagener s.n.* (holotype of *P. bufonis*: W). **Aragua**: Colonia Tovar, *Moritz 855* (LE, W); Colonia Tovar, 1854-55, *A. Fendler 1481* (K, W). **Mérida**: between La Cumbre, San José, and Mucutuy, alt. 1820-2590 m, 3 May 1944, *J.A. Steyermark 56254* (AMES, VEN); Distrito Libertador, El Morro, alt. 1680 m, 21 May 1988, *L.J. Dorr, L.C. Barnett & J. Dugarte 5274* (AMES, NY).
ECUADOR: **Morona-Santiago**; Misión Bomboiza, alt. ca. 800 m, 23 Apr. 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 4178* (AAU). **Loja**: along a stream above Vilcabamba, collected by D. D'Alessandro, cultivated May 1981, *C. Luer 6133* (SEL). *Zamora-Chinchipe*: swampy forest west of Paquisha, alt. 850 m, 19 Feb. 1986, *C. Luer, J. Luer, A. Hirtx, W. Flores & A. Embree 11920* (MO).
PERU: **San Martin**: San Roque, alt. 1350-1500 m, 10 Jan. 1930, *L. Williams 7259* (AMES, F); Lamas, Alonso de Alvarado, road to Moyobamba, alt. 800 m, 23 Apr. 1973, *J. Schunke 6031* AMES, NY). **Junín**: Oxapampa, 26 Aug. 1966, *D.E. Bennett 1510* (AMES, UC).
BOLIVIA: **Cochabamba**: dry, forest remnant, below Cocapata, alt. 2380 m, 5 Feb. 1987, *C. Luer, J. Luer, W. Teague, R. Vásquez & D. Ric 18385* (MO). *Santa Cruz*: scrub forest north of Santa Cruz, cultivated by L. Moreno, 3 Feb. 1988, *C. Luer 12980* (MO).
PARAGUAY: Sierra de Amambay, Punta Pará, col. G. Rojas, Hassler 10,000 (BR); Alto Paraná, 1909-1910, *K. Fiebrig 6050* (AMES); Colonia Morero, Feb. 1941, *F. Schade 27* (AMES); Alto Paraguay, Monte Vista Alegre, Feb. 1922, *T. Rojas 4266* (AMES).
BRAZIL: **Paraná**: Rio Alto Paraná, 17 Mar. 1883, *G. Niederlein s.n.* (BR); Itarare, cultivated 9 Mar 1911, *P. Dusén 11573* (holotype of *P. porphyrantha*: HBG; isotype: AMES). cultivated 1 Aug. 1911, *P.*

Dusén 11571 (HBG; Itararé, cultivated 9 Mar. 1911, *P. Dusén 11573* (K, S); Rio Branco do Sul, Ribeirinha, 8 May 1968, *G. Hatschbach 19210* (C); middle Ivahy, alt. 700 m, 19 Feb. 1937, *G. Tessmann 6102* (BR, K); middle Ivahy, alt. 700 m, 19 Feb. 1937, *G. Tessmann 6102* (K); Itararé, cultivated 9 Mar. 1911, *P. Dusén 11573* (K, S); Rio Branco do Sul, Ribeirinha, 8 May 1968, *G. Hatschbach 19210* (holotype of *P. smithiana* var. *riograndensis*: C). **Rio Grande do Sul**: Arroio Grande, Fazenda Providencia, Lago Mirim, 22 Jan. 1966, *Z.A. Trinta 1195* (HB-38610, K), C. Luer illustr. 19134. **Minas Gerais**: near Caldas, 18 Nov. 1854, *G.A. Lindberg s.n.* (W).

ARGENTINA: without locality, *A. Johnson 023* (MO).

PUERTO RICO: without locality, *D. Bello E. s.n.* (holotype of *P. coriacea* destroyed at B; neotype here designated): near Adjuntas in monte Bello, 9 Apr. 1886, *P. Sintenis 4251* (AMES), isoneotypes: BR, C, K, M, MO, NY, US, W); near Adjuntas in monte Bajada, 30 Apr. 1886, *P. Sintenis 4284* (BR, C); Villalba, Hda. El Semil, 24 Oct. 1939, *A.G. Kevorkian 6088* (AMES, USDA); Distrito de Guayama, Aibonito, alt. 2,050 ft., 14 Aug. 1965, *W.R. Stimson 1936* (AMES, DUKE).

DOMINICAN REPUBLIC: northwest of Santiago, El Peñón, above Las Lavas, alt. 600 m, 7 May 1968, *A.H. Liogier 11163, 11167* (AMES, NY, US); Manabao, Arroyo Grande, alt. 800 m, 10 Dec. 1969, *A.H. Liogier 17235* (AMES, NY). **Puerto Plata**: Yaroa River, alt, 500 m, 9 Mar. 1969, *A.H. Liogier 14531* (AMES, NY). **La Vega**: Bayacanes, near San Isidro, alt. 375 m, 2 Feb. 1969, *A.H. Liogier 13600* (NY).

This widely distributed, frequent, and variable species occurs in relatively drier areas of the Neotropics from Mexico through Central America, Puerto Rico in the Antilles, across South America, through the Andes, and into southern Brazil and Argentina. Variations have led to its description many times from various parts of this range. The species is characterized by thick, heavy, oblong leaves upon which the raceme of fleshy flowers lies. The background color of the sepals is rose or white, but heavily marked in spots, stripes and suffusion of purple. The lateral sepals are lightly connate, separating easily. The petals are broad, more or less flabellate, minutely fringed, and variously unguiculate. The lateral lobes of the lip are below the middle and erect, but variously formed, from obtuse to acute and antrorse.

Pleurothallis punicea Luer, Selbyana 1: 270, 1975.

Ety.: From the Latin *puniceus*, "red-purple," referring to the floral and vegetative parts.

Syn.: *Acianthera punicea* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls purple, relatively stout, channeled, erect, 2-7.5 cm long, enclosed below the middle by 2 tubular sheaths. **Leaf** erect, purple, thickly coriaceous, elliptical, obtuse to subacute, 3-11 cm long, 0.9-1.4 cm wide, cuneate below into the sessile base. **Inflorescence** a congested simultaneously 2- to 3-flowered raceme, ca. 1 cm long including the peduncle less than 5 mm long, from a spathe 3 mm long at the base of the leaf; floral bracts 1.5-2 mm long; pedicels 1.5-2 mm long; ovary 1 mm long; **sepals** solid dark purple or striped in dark purple, fleshy, glabrous, not widely spread, the dorsal sepal narrowly oblong, acute, carinate, 6-8 mm long, 1.25-2 mm wide, thickened toward the apex, the lateral sepals ovate, acute, tall-carinate, 6 mm long, 1.5 mm wide, connate 3 mm into a bifid synsepal, saccate-concave below the middlle; **petals** dark purple, membranous, narrowly ovate, acute, serrate, 3 mm long, 1 mm wide; **lip** dark purple, obovate, 4 mm long, 1.5 mm wide, the apex rounded, minutely denticulate, the margins broadly rounded and erect near the middle, the disc with a pair of verrucose carinae inside the margins above the middle, when expanded, the lip appears unguiculate, the base minutely bilobulate, hinged to the column-foot; **column** semiterete, minutely dentate at the apex, 2 mm long, the foot thick, 1.5 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Napo**: west of Tena, alt. 600 m, 26 July 1975, *C. Luer, G. Luer & S. Wilhelm 519* (Holotype: SEL); Río Cotundo, alt. 850 m, 18 Nov. 1984, *A. Hirtz 2120* (MO).

This species occurs uncommmonly at low alitudes in the wet forests of the oriente of Ecuador. It is characterized by the purple ramicaul; the purple, elliptical leaf; and a very short, few-flowered raceme of dark-purple flowers.The sepals are fleshy and acute, and the laterals are tall-carinate and deeply saccate below the middle. The petals are acute and serrate, and the lip is obovate with low, verrucu-lose carinae inside the margins above the middle.

Pleurothallis quadricristata Luer & Hirtz, sp. nov.

Ety.: From the Latin *quadricristatus*, "with four crests," referring to the petals.

Species haec *P. quadriserratae* Luer affinis, sed foliis ovatis cordatis pedunculo breviori, racemis abbreviatis paucifloris congestis, floribus flavovirentibus, petalis bicristatis et columna ad apicem multidenticulata differt.

Plant medium in size, epiphytic, shortly repent, rhizome ca. 5 mm long between ramicauls; roots slender. Ramicauls slender, erect, 12-15 cm long, with a tubular sheath above the base and 1-2 others at the base. **Leaf** erect, coriaceous, elliptical-ovate, subacute, 6-7 cm long, 3-3.5 cm wide, cordate at the sessile base. **Inflorescence** a congested, simultaneously 2- to 3-flowered raceme, to 1.5 cm long, from a spathe ca. 5 mm long at the base of the leaf; peduncle stout, 5 mm long; floral bract 2.5 mm long; pedicels 2 mm long; ovary 1.5 mm long; **sepals** light yellow-green, glabrous, fleshy, the dorsal sepal narrowly elliptical, acute, thickened toward the apex, 8 mm long, 2 mm wide, 3-veined, the lateral sepals connate to near the apex into a concave, ovate synsepal, 7.5 mm long, 4.25 mm broad unexpanded, 6-veincd; **petals** yellow-green, oblong, subacute, 3 mm long, 1 mm wide, 3-veined, with the veins and margins serrulate; **lip** yellow-green, fleshy, obovoid, the apex broadly rounded, 3.5 mm long, 1.8 mm wide, with low, thin, erect, broadly rounded marginal lobes on the basal quarter, the disc channeled between a pair of thick, parallel calli on the middle third, the base narrow, minutely bilobulate, flexibly attached to the column-foot; **column** yellow, stout, multidenticulate at the apex, 3 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Zamora-Chinchipe**: collected above Zumba, alt. 1200 m, cultivated by Ecuagenera, Gualaceo, Ecuador, 5 July 2002 *A. Hirtz 8265* (Holotype: MO), C. Luer illustr. 20201.

This species from southeasternmost Ecuador is allied to *P. quadriserrata* from coastal Ecuador. The petals of both species are bicarinate-serrate. *Pleurothallis quadricristata* is distinguished by sessile leaves that are cordate at the base instead of cuneate. The leaves are half the length of the ramicauls; they are about equal in length in *P. quadriserrata*. The raceme is short and congested instead of loosely flexuous. The lip of *P. quadricristata* is bicarinate with a pair of low, rounded, marginal lobes above the base. The lip of *P. quadriserrata* has a pair of low calli, with acute or subacute marginal angles below the middle.

Pleurothallis quadriserrata Luer, Selbyana 1: 82, 1975.

Ety.: From the Latin *quadriserratus*, "four-serrate," referring to the petals.

Syn.: *Acianthera quadriserrata* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant medium in size to large, epiphytic, shortly repent to caespitose; roots slender. Ramicauls occasionally prolific, slender, erect or hanging, terete, 5-14 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, thickly coriaceous, suffused with purple, elliptical, acute, 7-11 cm long, 1.5-4.2 cm wide, cuneate below to the base, sessile. **Inflorescence** a loose, distichous, simultaneously several-flowered raceme, 4-6 cm long including the peduncle 1.5-2 cm long, subtended by a spathe 1-1.5 cm long, at the base of the leaf; floral bracts 2 mm long; pedicels 1 mm long; ovary 1.5-2 mm long; **sepals** fleshy, glabrous, subcarinate, pale yellow-green, mottled and striped with purple along the veins, the dorsal sepal narrowly ovate, acute, 6-8 mm long, 2-2.5 mm wide, 3-veined, the lateral sepals connate to near the apex into an oblong-ovate, bifid lamina, 6.5-8.5 mm long, 4.5 mm wide, 6-veined, with the apices acute, free for 1-2 mm; **petals** translucent with purple midvein, elliptical-obovate, acute, minutely denticulate, 2.5-3 mm long, 0.75-1 mm wide, 1-veined, with a longitudinal crest within each margin; **lip** purple, thick, elliptical-oblong, obtuse to rounded at the apex, 3.25-4.25 mm long, 2-2.25 mm wide, the sides erect below the middle with an obtuse angle between the middle and basal thirds, the disc shallowly sulcate between a parallel pair of low calli on the middle third, the base broadly subunguiculate, truncate, with a minute lobe at the corners, hinged to the column-foot; **column** semiteret, shallowly winged above the middle, 2.5 mm long, dentate at the apex, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Pichincha**: epiphytic in old cacao trees between Santo Domingo and Chone, alt. 350 m, collected in 1972, cultivated 15 June 1974, *David & Thomas Dodson s.n.* (Holotype: SEL), C. Luer illustr. 113; same area, Chone, collected by R. Estrada, cultivated 21 July 1977, *C. Luer 1764* (SEL). **Esmeraldas**: new road from Lita to San Lorenzo, alt. 60 m, 25 Jan. 1996, *A. Hirtz, X. Hirtz & J. del Hierro 6269* (MO). **Los Ríos**: forest of Naranjal and Babahoyo, on cacao trees, *F.C. Lehmann 4511* (K); Quevedo-Latacunga road, collected by H.H. Morgan, cultivated 31 Dec. 1979, *C. Luer 4848* (SEL).

florescence shorter than the leaf. The sepals are marked with purple, especially along the veins. The petals are distinctive with a serrated, longitudinal crest just inside both denticulate margins, which creates two pairs, or four serrated margins on each petal. The non-verrucose lip is broadly and shallowly channeled between low, longitudinal calli and erect marginal angles below the middle

Pleurothallis rodrigoi Luer, Rev. Soc. Bol. Bot. 3: 19, 2003.

Ety.: Named for Rodrigo Escobar, foremost Colombian orchidologist, who collected this species.

Plant large, epiphytic, shortly repent, the rhizome stout, 3 cm long between ramicauls; roots slender. Ramicauls erect, 40-50 cm long, sharply 3-winged, 1.5 cm broad at the leaf, with the apex 1.5 cm above the marginal junction between the ramicaul and leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, coriaceous, ovate, acute, 9.5-12 cm long, 3.5-5 cm wide, sessile with the margins continuous with the wings of the ramicaul. **Inflorescence** a 3-4 congested, simultaneously 2- to 3-flowered racemes, 10-15 mm long including the peduncle 3-5 mm long, from a spathe 1 cm long, from the apex of the ramicaul; floral bracts 2 mm long; pedicels 2 mm long; ovary cellular-glandular, 1.5 mm long; **sepals** fleshy, yellow, cellular-glandular externally and internally, the dorsal sepal oblong, obtuse, apiculate, 6.5 mm long, 2 mm wide, 3-veined, the lateral sepals connate into an obovate synsepal, concave basally, 5 mm long, 3.5 mm wide, 6-veined, the apex obtuse; **petals** translucent, broadly obovate, obtuse to rounded, erose at the tip, 2.75 mm long, 1.5 mm wide, 1-veined; **lip** oblong-trilobed, 3 mm long, 1 mm wide, the apex ovate, subacute, microscopically denticulate, the lateral lobes near the middle, erect, acute, uncinate, antrorse, the disc with a pair of low, parallel carinae from near the middle onto the anterior lobe, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** slender, semiterete, narrowly winged, 2.5 mm long, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

COLOMBIA: **Antioquia**: El Retiro, La Horqueta, alt. 2500 m, collected by F. Lopez, flowered in cultivation at Colomborquídeas, 2 Jan. 1993, *R. Escobar 5170* (Holotype: MO), C. Luer illustr. 16614.

This huge species is obviously related to the relatively common, widely distributed and variable *P. sicaria*, but it is easily recognized by the immense size. The rhizome is thick, producing every three centimeters a ramicaul twice longer than those of *P. sicaria* with leaves thrice larger. The flowers are small with thick, obtuse sepals. The membranous petals are obovate. The lip, however, is similar with sharply acute lateral lobes.

Pleurothallis rubroviridis Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 327, 1858.

Ety.: From the Latin *rubroviridis*, "reddish green," referring to the flowers.

Syn.: *Pleurothallis cubensis* Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 328, 1858.

Ety.: Named for the island of Cuba where the species was collected.

Syn.: *Humboldtia cubensis* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Humboldtia rubroviridis* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis verruculosa* Kraenzl., Repert. Spec. Nov. Regni Veg. 1: 177, 1905.

Ety.: From the Latin *verruculosus*, "filled with verrucae," referring to the sepals.

Syn.: *Acianthera cubensis* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Syn.: *Acianthera rubroviridis* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 5-22 cm long, terete below, sharply 3-winged above, gradually broader toward the leaf, 4-5 mm deep, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, thinly coriaceous, with thin, sharp, delineated margins, elliptical, subacute to obtuse, 5-9 cm long, 2-3.5 cm wide, sessile with the margins continuous with the wings of the ramicaul. **Inflorescence** a congested, simultaneously 2- to 3-flowered raceme, ca. 1 cm long including the peduncle ca. 0.5 cm long, from a spathe 8-10 mm long from the apex of the ramicaul; floral bracts 1-2 mm long; pedicels 1-1.5 mm long; ovary cellular-pubescent, 1.5 mm long; **sepals** yellow, fleshy, microscopically pubescent externally, strongly tuberculate within above the middle, margined, the dorsal sepal obovate, obtuse, 5-8 mm long, 2.5 mm wide, 3-veined, the lateral sepals connate into an obovate, obtuse, bifid, rounded lamina, 4-7 mm long, 3.5-4 mm wide, 6-veined, the apices obtuse, in apposition; **petals** yellow, heavily suffused with purple below the middle, obovate, obtuse to subtruncate, entire, 2 mm long, 1 mm wide, 1-veined; **lip** purple, fleshy with thin margins, oblong, 2 mm long, 0.75

mm wide, the apex oblong, rounded, the sides erect with an obtuse angle near the middle, the disc shallowly channeled between a thick pair of parallel carinae on the middle third, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** purple, stout, 1.75-2 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

CUBA: Orientali, 1856-57, *C. Wright s.n.* (Holotype: K); near Monte Verde, Jan.-July 1859, 1860, *C. Wright 653* (holotype of *P. cubensis*: K; isotypes: AMES, BR, LE, P, W); near Monte Verde *C. Wright 2967* (W): Valley of Río Bayamita, alt. 900-1050 m, 5-7 Apr. 1907, *W.R. Maxon 3946* (AMES). Yamuri Arriba to Bermejal, 31 Jan.-1 Feb. 1911, *J.A. Schafer 8463* (AMES); Sierra Maestra, vicinity of Loma del Gato, 11 July- 14 Aug. 1921, *Brothers Leon, Clement & M. Roca 10638* (NY); Baracoa: Sierra de Imías, Puntón del Mate, alt. 1230 m, 17 July-4 Aug. 1924, *Bro. Leon 12284* (NY); Sierra Maestra, Cordillera de la Gran Piedra, alt. 900 m, 22 Apr. 1956, *M. López F. 2685* (HAJB); Loma del Gato, 25 Sept. 1935, *J. Acuña 9790* (HAC, HAJB). **Guantanamo**: Pinar de Monte Cristi, Felicidad de Yateras, alt. 700 m, 13 May 1983, *J. Bisse et al. s.n.* (HAJB); Sierra de Frijol, Palenque, NW del Pico Galeno, alt. 800 m, 17 May 1983, *J. Bisse et al. s.n.* (HAJB). **Santiago de Cuba**: falda este de Gran Piedra, 26 Apr. 1969, *J. Bisse & H. Lippold 14686* (JE); Santiago de Cuba, Gran Piedra, alrededores de la Isabelina, 4 May 1989, *J. Gutierrez et al, s.n.* (HAJB).
VENEZUELA: **Monagas**: Bucare, above Caripe, alt. 4,000 ft, collected ny M. Forrester, Nov. 1963, *G.C.K. Dunsterville 825.*
ECUADOR: **Morona-Santiago**: north of Sucua near Huambi, alt. 750 m, 7 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12717* (MO); Cordillera del Cutucú, between Mendez and Morona, alt. 950 m, 17 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, P. & A. Jesup 13947* (MO).
PERU: **Cajamarca**: Chota, west of Huambos, alt. 3100 m, *A. Weberbauer 4180* (holotype of *P. verruculosa* lost at B); **Huánuco**: Tingo Maria, 11 July 1940, *E. Asplund 12165* (AMES, S); south of Tingo Maria, Río Huallaga, alt. 750 m, 10 Aug. 1980, *C. Luer, J. Luer, M. Arias, H. & W. Königer 5341* (SEL).

Placing *P. rubroviridis* before *P. cubensis* in the publication, Lindley described simultaneously two collections by Wright from the southeasternmost mountains of Cuba. It appears as if larger specimens (*P. cubensis)* had been merely separated from the smaller specimens (*P. rubroviridis*). Although found nowhere else in the Antilles, this species occurs locally at relatively low altitudes in Venezuela, Colombia, Ecuador and Peru. Similar to the frequent *P. sicaria*, this species is distinguished by the sharply winged ramicaul. The margins of the leaves are thinly delineated. The fleshy flowers are borne in a short raceme. The sepals are conspicuously "cobble-stoned" within. The petals are obovate, obtuse, and entire. The lip is oblong with low, obtuse, marginal angles below the middle.

Pleurothallis sandaliorum G.A.Romero & Carnevali, Harvard Pap. Bot. 5: 182, 2000.

Ety.: Named for the Sandalio family of Maroa, in remembrance of their hospitality.

Plant medium in size, epiphytic, shortly repent, the rhizome stout, ? cm long between ramicauls; roots slender. Ramicauls erect, 5 cm long, sharply compressed, 4 mm deep above at the leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** spreading, coriaceous, broadly elliptical to suborbicular, obtuse, 4.5 cm long, 4.5 cm wide, sessile with the base deeply cordate. **Inflorescence** a fascicle of successive, single-flowered peduncles, borne from the base of the leaf, the spathe disintegrating, at the apex of the ramicaul; peduncles 1.5-2 mm long; floral bract 1.5 mm long; pedicel 2.5 mm long; ovary 1.75 mm long; **sepals** fleshy, glabrous, the dorsal sepal oblong-obovate, obtuse, thickened at the apex, 8 mm long, 2.5 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into an ovate, obtuse, minutely bifid synsepal, 6.5 mm long, 5.25 mm wide expanded, 6-veined, forming a deep, conspicuous mentum with the column-foot; **petals** translucent, obovate, rounded and microscopically serrate at the apex, 2.25 mm long, 1.4 mm wide, 1-veined; **lip** obovoid-trilobed, 4 mm long, 2.2 mm wide, the apex rounded, microscopically irregular, the margins erect below the middle, with an obtuse, antrorse lobe, the disc with a pair of lightly verrucose calli on the middle third, the base truncate, minutely bilobulate, hinged to the tip of the column-foot; **column** shallowly winged above the middle, 2.5 mm long, lobed and minutely toothed at the apex, the foot 2 mm long, the anther, rostellum and stigma ventral.

VENEZUELA: **Amazonas**: Guainía, between Yavita and Maroa, alt. 120 m, 25 Oct. 1998, *G.A. Romero, C. Gómez, L.M. Campbell & G. Gerlach 3230* (Holotype: AMES), C. Luer illustr. 19048.

Vegetatively, this species is most similar to *P. erythrogramma* with a circular, deeply cordate leaf borne by a sharply compressed ramicaul. The single flower is smaller with fleshy, obtuse sepals. The petals are microscopically denticulate. The lip is three-lobed, basically similar to most species of the subgenus.

Pleurothallis saundersiana Rchb.f., Gard. Chron. 74, 1866.

Ety.: Named in honor of W. Wilson Saunders, Esq., Hillfield House, near Reigate, England, who cultivated this species in his collection of pleurothallids.

Syn.: *Pleurothallis felis-lingua* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 18, 1882.
Ety.: From the Latin *felis-lingua*, "a cat tongue," referring to the labellum.

Syn.: *Pleurothallis bidentula* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 20, 1882.
Ety.: From the Latin *bidentulus*, "with two little teeth," referring to calli of the lip.

Syn.: *Pleurothallis josephensis* Barb.Rodr., Vellosia ed. 2: 117, 1891.
Ety.: Named for Serra de São José d'El Rey where the species was collected.

Syn.: *Pleurothallis repens* Rolfe, Bull. Misc. Inform. 131, 1912, non Ames 1908.
Ety.: From the Latin *repens*, "creeping," referring to the rhizome.

Syn.: *Pleurothallis juergensii* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 35: 54, 1925.
Ety.: Named for C. Jürgens who collected this species.

Syn.: *Pleurothallis auriculigera* Hoehne & Schltr., Arch. Bot. Estado São Paulo 1: 207, 1926, non Rchb.f., 1871.
Ety.: From the Latin *auriculiger*, "ear-bearing," referring to the auricles of the lip.

Syn.: *Pleurothallis butantanensis* Hoehne & Schltr., Arch. Bot. Estado São Paulo 1: 209, 1926.
Ety.: Named for Butantan where the species was collected.

Syn.: *Pleurothallis ascendens* Garay, Arq. Jard. Bot. Rio de Janeiro 12: 170, 1953, nom. nov.
Ety.: From the Latin *ascendens*, "ascending," referring to the repent habit.
Syn.: *Acianthera saundersiana* (Rchb.f.) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant medium in size, epiphytic, long-repent, the rhizome 1.5-3 cm long between ramicauls; roots slender. Ramicauls ascending, suberect, stout, 2-5.5 cm long, enclosed by a loose, tubular sheath and 1-2 about the base. **Leaf** suberect to erect, coriaceous, elliptical, subacute to acute, 3-7.5 cm long, 1-3 cm wide, the base rounded to cuneate, sessile. **Inflorescence** a single flower or a successively 2-flowered raceme, peduncle 3-5 mm long, borne along the front surface of the leaf, from a spathe 2-4 mm long; floral bract tubular, 2-3 mm long; pedicels 2-4 mm long, with a filament if flower single or terminal; ovary 1.5-2 mm long; **sepals** yellow-green to tan, variously suffused, mottled or striped with purple or brown, fleshy, the dorsal sepal narrowly oblong, obtuse, thickened above the middle, 11-16 mm long, 3-4 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate (sometimes separating) into an elliptical, subacute to obtuse, minutely biapiculate lamina, concave toward the base with a mentum below the column-foot, 10-14 mm long, 5-7 mm wide, 6-veined; **petals** translucent light yellow-green, veined in purple, obovate-spathulate, acute, denticulate above the middle, 2.5-4 mm long, 1-2 mm wide, 3-veined; **lip** dark orange or brown, thick, fleshy, oblong-trilobed, 3.5-4 mm long, 2 mm wide, the apex rounded, minutely verrucose and denticulate, the lateral lobes small, erect, suborbicular or broadly rounded, below the middle, the disc shallowly sulcate between a low pair of parallel, verrucose carinae on the middle third anterior to the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** winged above the middle, minutely denticulate at the apex, 2.5-3 mm long, the foot 1-1.5 mm long, the anther, rostellum and stigma ventral.

BRAZIL: without collection data, imported by Mr. Low, England, cultivated by *W.W. Saunders s.n.* (Holotype: W). **Ceará**: Pico Alto de Serra, Serra de Baturité, Sept. 1910, *E. Ule 9007* (K). **Minas Gerais**: Serra de São José d'El Rey, *B. Rodriguez s.n.* (holotype of *P. josephensis*: B.Rodr. illustr.). **Paraná**: Volta Grande, 5 Nov. 1908, *P. Dusén 6994* (AMES); Horto Florestal I.N.P., Ibirama, alt. 350 m, 2 Nov. 1953, *Reitz & Klein 1179* (AMES); Guaratuba, Pedra Branca de Jararaquara, 3 Sept. 1952, *G. Hatschbach 2960* (AMES). **Santa Catarina**: San Francisco do Sul, Garuva, Tres Barras, alt. 200 m, 24 Aug. 1957, *Reitz & Klein 4696* (AMES,); Paraty, 25 Oct. 1928, *F.C. Hoehne s.n.* (AMES). **Rio de Janeiro**: near Palmeiras, alt. 320 m, *B. Rodrigues s.n.* (Holotype of *P. bidentula*: Rodrigues's illustr.); Theresópolis, 23 June 1887, *J.T. de Moura 22* (BR); same locality, July 1888, *J.T. de Moura 294* (BR). **São Paulo**: São Paulo, Butantan, 20 July 1921, *F.C. Hoehne s.n.*, (holotype of *P. butantanensis* destroyed at B; lectotype here designated: SP-5718; isolectotype: HB); Pirajussára, 14 July 1921, *A. Gehrt 5713* (holotype of *P. auriculigera*: HB; isotype: AMES), C. Luer illustr. 19082. **Rio Grande do Sul**: Rio Pardo, Fazenda Boa Esperanza, alt. 70 m, Mar. 1921, *C. Jürgens 20* (Holotype of *P. juergensii* destroyed at B.). **Paraná**: Guaratuba, Pedra Branca de Jaraquara, 3 Sept. 1952, *G. Hatschbach 2960* (AMES); Campina Grande do Sul, Pico Caratuva, 29 Dec. 1967, *G. Hatschbach 18211* (C). **Bahia**: cultivated by V. Castro, Nov. 1989, *C. Luer 14477* (MO). Without locality, imported with *Laelia purpurata*, cultivated at Clare Lawn, East Sheen, S.W., 6 Jan. 1904, *F. Wigan s.n.* (holotype of *P. repens*: K).
PERU: **Amazonas**: near Chachapoyas, cultivated in Tacoma, WA, 1993, *K. Tokach 17* (MO), C. Luer illustr. 17028.
BOLIVIA: **Santa Cruz**: collected by Janet Kuhn, cultivated at J & L Orchids, Easton, CT, 29 Oct. 1975, *C. Luer 592* (SEL).

This species was first obtained by W. Wilson Saunders, Esq. from Mr. Low's Nursery, which in turn had imported the plant from Brazil without collection data. There is a sketch on the type-sheet at W, but without specimen or flower in either of two empty envelopes. It is a variable species uncommon in Peru and Bolivia, but frequent in southern Brazil where it has accumulated an assortment of synonymous epithets from several authors.

Pleurothallis saundersiana is characterized by a strong, long-repent rhizome that gives rise to a series of suberect to erect ramicauls each with a sessile, elliptical leaf about equally long. From the base of the leaf a relatively large, short-pedunculate, bilabiate flower is produced singly or in a successively two-flowered raceme. The sepals are fleshy and mottled, suffused or striped with purple or brown. The petals are small, obovate, acute and denticulate. The lip is thick and oblong with small, marginal, erect, denticulate lobes below the middle; a pair of verrucose calli on the middle third; and a minute lobule at each corner of the base.

Pleurothallis scalpricaulis Luer, Selbyana 1: 424, 1976.

Ety.: From the Latin *scalpricaulis*, "chisel-stemmed," referring to the sharply winged ramicauls.
Syn.: *Acianthera scalpricaulis* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant medium in size to large, epiphytic, shortly repent to caespitose; roots slender. Ramicauls erect, 10-18 cm long, sharply 3-winged, gradually broader toward the leaf, 6 mm wide, 8 mm deep at the leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 10-13 cm long, 4-5 cm wide, sessile with the margins continuous with the wings of the ramicaul. **Inflorescence** a congested, simultaneously 2- to 5-flowered raceme, 10-15 mm long including the peduncle ca. 5 mm long, from a spathe 5-6 mm long, at the apex of the ramicaul; floral bracts 3 mm long; pedicels 2-3 mm long; ovary microscopically pubescent, 3-4 mm long; **sepals** brown, fleshy, shortly pubescent externally, faintly tuberculate within, the dorsal sepal obovate, subacute, apiculate, 10-11 mm long, 3.5 mm wide, 3-veined, the lateral sepals adherent into an ovate, recurved synsepal, 7 mm long, 7 mm wide, easily separable when expanded, the apices obtuse, apiculate, in apposition; **petals** yellow-brown, spathulate, obtuse, apiculate, minutely serrate, 6 mm long, 2 mm wide, 1-veined, thick along the vein, unguiculate below the middle with the claw curved; **lip** olive brown, ovoid-subtrilobed, obtuse, 4 mm long, 2.5 mm wide, the sides erect below the middle, broadly rounded above the base, the disc with a central, channeled callus, thickest at the base, the base truncate, minutely lobed at the angles, hinged to the column-foot; **column** slender, broadly winged above the middle, 5 mm long, dentate at the apex, the foot 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Morona-Santiago**: south of Gualaquiza, alt. 600 m, 6 Aug. 1975, *C. Luer, G. Luer & S. Wilhelm 619* (Holotype: SEL).

This species from southeastern Ecuador is distinguished by an elliptical leaf, a sharply winged ramicaul, and a short, few-flowered raceme of rigidly fleshy, brown flowers. Although coherent into an arcuate synsepal in the natural position, they separate easily into falcate blades when the lamina is expanded. The petals are spathulate and unguiculate. The lip is ovoid with a central, longitudinal, grooved callus.

Pleurothallis sicaria Lindl., Edwards's Bot. Reg. 27: Misc. 91, 1841.

Ety.: From the Latin *sicarius*, "a knife-wielding assassin," referring to the leaf and ramicaul.

Syn.: *Pleurothallis tripteris* Rchb. f., Linnaea 22: 829, 1849.
Ety.: From the Greek *tripteris*, "three winged," in allusion to the ramicaul.

Syn.: *Pleurothallis trigonopoda* Klotzsch, Allg. Gartenzeitung 21: 361, 1853.
Ety.: From the Greek *trigonopodas*, "triangular-footed," referring to the ramicaul.

Syn.: *Humboldtia sicaria* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis alpina* Ames, Sched. Orchid. 5: 14, 1923.
Ety.: From the Latin *alpinus*, "alpine," referring to the mountainous habitat.
Syn.: *Acianthera alpina* (Ames) Pridgeon & M.W.Chase, Lindleyana 16: 242, 2001.
Syn.: *Acianthera sicaria* (Lindl.) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant medium in size to large, epiphytic, shortly repent to caespitose; roots slender. Ramicauls erect, 10-30 cm long, sharply 3-winged, gradually broader toward the leaf, with the apex slightly above the marginal junction between the ramicaul and leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, thinly coriaceous, elliptical-ovate, acute, 6-13 cm long, 1-3 cm wide, sessile with the margins continuous with the wings of the ramicaul. **Inflorescence** a congested, simultaneously 2- to 6-flowered raceme, 10-15 mm long including the peduncle ca. 5 mm long, in a fascicle of successive racemes, from a spathe 5-10 mm long, from the apex of the ramicaul; floral bracts 2-4 mm long; pedicels 1-2 mm long; ovary cellular-glandular, 1.5-3 mm long; **sepals** variously colored from yellow or green to brown, with or without red or purple stripes, glabrous (microscopically pubescent externally), the dorsal sepal ovate, acute, subacute to narrowly obtuse, 5.5-12 mm long, 2-3 mm wide, 3-veined, the lateral sepals connate into an ovate or obovate synsepal, 4.5-11 mm long, 3.5-5.5 mm wide, 6-veined, the apex acute to obtuse, minutely bifid; **petals** translucent with brownish midvein, elliptical-obovate, acute, minutely serrate, 3-5 mm long, 1-1.5 mm wide, 1- or 3-veined; **lip** yellow or brown, oblong-trilobed, 3-5 mm long, 1-1.5 mm wide, the apex ovate, acute to obtuse, microscopically to coarsely fringed, the lateral lobes near the middle, erect, uncinate, antrorse, the disc with a pair of low, parallel carinae from near the middle onto the anterior lobe, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** slender, semiterete, narrowly winged, 3-4 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

Representative collections:
TRINIDAD: Nov. with illegible date, cultivated by *Loddiges s.n.* (Holotype: K).
VENEZUELA: **Dist. Fed.**: "Caracas," alt. 4,000 ft, Jan. 1846, *L. Schlim 127* (holotype of *P. tripteris*: W). **Aragua**: Colonia Tovar, 1854-56, *A. Fendler 1482* (K); "Caracas," 4,000 ft., 1846, *L. Schlim 427* (W); La Victoria, above Pie del Cerro, Sept. 1954, *G.C.K. Dunsterville 230*. Without locality, obtained from José Firmin, cultivated by J & L Orchids, Nov. 1977, *C. Luer 2214* (SEL). Without locality, cultivated, *H. Wagener s.n.* (holotype of *P. trigonopoda*: ?).
COLOMBIA: "New Grenada:" loose stones, Río Cuchero, Aug. 1825, *Purdie s.n.* (K). **Antioquia**: Frontino, between Nutibara and Murrí, alt. 1870 m, 23 Sept. 1987, *J.L. Zarucchi, A.E. Brant & C.J. Castraño 5669* (AMES, MO); Yarumal, road to El Cedro, alt. 1850 m, 15 Mar. 1989, *C. Luer, J. Luer, S. Dalström & W. Teague 14166* (MO); Alto de Cuevas, west of Nutibara, alt. 1710 m, 4 Mar. 1992, *A. Gentry, C. Barbosa & C. Cardenas 76184* (MO). **Cundinamarca**: Bogotá, alt. 7800 m, *H. Karsten s.n.* (W). **Valle del Cauca**: west Andes of Cali, Papagalleros and Tacotá, alt. 1200-1800 m, no date, *F.C. Lehmann 7132* (K); branch of Río Cali, Pichindé, Morro Pedado, alt. 2270-2320 m, 17 Oct. 1944, *J. Cuatrecasas 18159* (AMES). **Quindío**: Guavito, Río Tuluam, 17 Sept. 1853, *I.F. Holton 156* (K); Quindío, Las Cruces, Río Cochesito, 9 Mar. 1876, *E. André 2281* (K). **Nariño**: above Ricaurte, alt. 1600 m, 3 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4569* (K, SEL); Ricaurte, between San Isidro and La Planada, alt. 1500-1800 m, 13 Feb. 1988, *O. de Benavides 9235* (MO, PSO).
PANAMA: **Chiriquí**: "Caramilla," alt. ca. 1500 m, Mar. 1923, *C.W. Powell 282* (holotype of *P. alpina*: AMES); cloud forest above Boquette, alt. 1700 m, 17 Dec. 1976, *C. Luer, A. Luer, R.L. Dressler et al. 1355* (SEL). **Coclé**: hills north of El Valle, alt. 800-1000 m, 2 Jan. 1941, *P.H. Allen 2289* (AMES).
COSTA RICA: Without locality, ca. 1867, *A. Endres s.n.* (AMES). **Cartago**: Cerro Grande, *A. Endres s.n.* (W); Colorado (Laguna), near Turrialba, *A. Endres s.n.* (W); Carpintera, alt. 5,600 ft., 7 Mar. 1928, *H.E. Stork 1167* (AMES). **Alajuela**: La Palma, alt. 1190 m, 18 Dec. 1922, *A.M. Brenes 182* (AMES); Alfaro Ruiz, San Luis de Zarcero, alt. 1550, 1 June 1938, *A. Smith H710* (AMES). **Guanacaste**: vicinity of Tilarán, alt. 500-650 m, 10-31 Jan. 1926, *P.C. Standley & J. Valerio 44337* (AMES); **Cartago**: San Isidro, alt. 5,000 ft., *C.H. Lankester 760* (AMES). **Heredia**: Yerba Buena, alt. 2000 m, 22 Feb. 1926, *P.C. Standley & J. Valerio 49053, 49085, 49262, 50221* (AMES); **Puntarenas**: Monteverde, in dairy pasture, alt. 1525 m, 11 Mar. 1989, *J.T. Atwood & W. Haber 89-54* (K, SEL). **San José**: Zurquí, alt. 2000-2500 m, 13 Feb. 1926, *P.C. Standley & J. Valerio 48152* (AMES).
HONDURAS: **Yoro**: Cascada de Río Guán Guán, alt. 400 m, 20 Apr. 1995, *T. Hawkins & M. Merello 778* (MO). Monte Cualo, alt. 1720 m, 5 Feb. 1937, *F. Solís Rojas 520* (MO).
ECUADOR: **Carchi**: between Tulcán and Maldonado, alt. 2100-2200 m, 20 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Øllgaard 6075* (AAU). **Pichincha**: above Mindo, 11 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4750* (SEL). **Imbabura**: Río Blanco above Guadual, alt. 1450 m, 20 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12448* (MO). **Chimborazo**: alt. 6,000 ft., Aug. 1860, *R. Spruce 6134* (K). **Tungurahua**: west slopes of Tungurahua, terrestrial, alt. 8,000 ft., 16 July 1878, *F. C. Lehmann s.n.* (W): epiphytic along Río Negro, alt. 1300 m, 12 Mar. 1963, *C.H. Dodson & L.B. Thien 2362* (SEL). **Pastaza**: Mera, alt. ca. 1100 m, 25 May 1968, *G. Harling, G. Storm & B. Ström 9943* (GB); Mera, along Río Allpayacu, alt. 1000 m, 6 Mar. 1980, *G. Harling & L. Andersson 16977* (GB); **Morona-Santiago**: forest north of Gualaquiza, alt. 1800 m, 17 Jan. 1986, *S. Dalström & T. Höijer 1061* (MO); Cordillera del Condor, east of Guismé, alt. 1650 m, 20 Jan. 1989, *C. Luer, J. Luer, P. Jesup & A. Jesup 14026* (MO). **Zamora-Chinchipe**: east of the pass east of Loja, alt. 1500 m, 12 Oct. 1959, *C. H. Dodson 21* (SEL); above Valladolid, alt. 2000 m, 18 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9603* (MO). **Azuay**: collected near Cuenca, cultivated by E. Sánchez, 6 Mar. 2001, *C. Luer 19792* (MO).
BOLIVIA: **Cochabamba**: Chapare, forest between Cochabamba and Villa Tunari, alt. 1500 m, 17 Jan. 1988, *C. Luer, J. Luer, R. Vásquez T. & D. Mulder & A. Vogel 12861* (MO).

This species is relatively frequent, variable morphologically, and widely distributed across northern South America, the Andes, and into Central America. Populations with narrow blades of the leaf and long ramicauls contrast with relatively wider blades and proportionately shorter ramicauls. Others have a short blade and a very long, widely winged ramicaul. In all variations, the texture of the blade and the winged ramicaul is relatively thin. The flowers, produced in short, few-flowered racemes, are found in various colors (yellow, green, almost white, to olive, tan or brown), with or without purple, red or brown stripes. The flowers of some plants gape widely, those of others do not. The synsepal varies from acute to broadly obtuse. The sepals vary from 5 to 12 millimeters in length. All combinations of variations are found in different localities in Ecuador. The petals are minutely to microscopically serrulate. Similar variations occur with the serrations or fringe of the lip. The apex of the lip is acute in specimens from Venezuela, but mixtures of acute, obtuse, and rounded lips occur randomly.

Pleurothallis sicariopsis Luer, Phytologia 49: 217, 1981.

Ety.: Named for the similarity of the species to *Pleurothallis sicaria*.

Syn.: *Acianthera sicariopsis* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant medium in size to large, epiphytic, shortly repent to caespitose, the rhizome 3-12 mm long between ramicauls; roots slender. Ramicauls erect, 10-22 cm long, sharply 3-winged above the base, gradually broader to 12 wide at the leaf, with the apex slightly above the marginal junction between the ramicaul and leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, thinly coriaceous, elliptical-ovate, acute, 6-10 cm long, 2-3.2 cm wide, sessile with the margins continuous with the wings of the ramicaul. **Inflorescence** a congested, simultaneously 2- to 6-flowered raceme, 10-15 mm long including the peduncle ca. 5 mm long, in a fascicle of successive racemes, from a spathe 5-10 mm long, from the apex of the ramicaul; floral bracts 2 mm long; pedicels 1-2 mm long; ovary cellular-glandular, 2.5 mm long; **sepals** light green, yellow to brown, more or less spotted with red-brown, fleshy, glabrous (microscopically pubescent externally), the dorsal sepal obovate-oblong, obtuse, 8.5-9 mm long, 2.5-3 mm wide, 3-veined, the lateral sepals connate into an obtuse, obovate synsepal, 7 mm long, 4-5 mm wide, 6-veined, forming a prominent mentum below the column-foot; **petals** translucent yellow, marked with purple, oblong, abruptly contracted in the distal third with a few minute teeth into a subulate apex, 5 mm long, 1 mm wide, 1-veined; **lip** dark purple, oblong-trilobed, 5-6 mm long, 1 mm wide unexpanded, the apex thick, obtuse, densely muricate-denticulate, the lateral lobes near the middle, thin, erect, uncinate, antrorse, the disc thickened, muricate above the middle, the base truncate, obscurely lobed at the angles, hinged to the tip of the column; **column** slender, semiterete, narrowly winged, 3.5 mm long, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Cotopaxi**: epiphytic in cloud forest west of El Corazón, alt. 1200 m, 18 Feb. 1979, *C. Luer, J. Luer & A. Hirtz 4025* (Holotype: SEL). **Morona-Santiago**: without locality, purchased from a local inhabitant, flowered in cultivation, 11 Feb. 1981, *C. Luer 3836* (SEL). **Zamora-Chinchipe**: between Loja and Zamora, alt. 1500 m, 12 Oct. 1959, *C.H. Dodson 21* (SEL).

This species, or extreme variation of *P. sicaria*, is known only from Ecuador. It is closely related to the frequent, widely distributed and morphologically variable *P. sicaria*. Vegetatively indistinguishable, it is distinguished by the fleshier, obtuse sepals that form a prominent mentum below the column-foot; long-apiculate petals; and a densely muricate lip.

Pleurothallis sicula Luer & Vásquez, Rev. Soc. Bol. Bot. 1(2): 17, 1977.

Ety.: From the Latin *sicula*, "a small dagger," in allusion to the appearance of the habit.

Plant small, epiphytic, caespitose; roots long, slender. Ramicauls erect, 4-7 cm long, sharply 3-winged, slightly broader at the junction with the leaf, 5 mm wide, with the apex near the junction between the ramicaul and the leaf, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical-ovate, acute, 5-9 cm long, 1.2-1.8 cm wide, sessile with the margins continuous with the wings of the ramicaul. **Inflorescence** a congested, simultaneously 4- to 5-flowered raceme, 15-20 mm long including the peduncle ca. 5 mm long, from a spathe 5-8 mm long from the apex of the ramicaul; floral bracts 3 mm long; pedicels 0.5 mm long; ovary densely short-pubescent, 2 mm long; **sepals** brown, yellow-brown to orange with age, fleshy, shortly pubescent externally, lightly tuberculate within above

the middle, the dorsal sepal oblong, obtuse, 5.5 mm long, 1.5 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals connate into an ovoid lamina with incurved margins, 4.5 mm long, 3.5 mm wide unexpanded, 6-veined, the apex obtuse, minutely bifid; **petals** dark purple, oblong, obtuse, 2.5 mm long, 1 mm wide, with the margins denticulate above the middle, 1-veined; **lip** dark brown, thick, fleshy, ovoid-trilobed, 2.25 mm long, 1.5 mm wide, the apex ovate, obtuse, irregularly denticulate, the lateral lobes on the lower third, erect, rounded, denticulate, the disc with a pair of thick carinae on the middle third anterior to the marginal lobes, the base truncate, minutely lobed at the angles, hinged to the tip of the column-foot; **column** stout, obtusely winged above the middle, 2 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

BOLIVIA: **Cochabamba**: Chapare, north east of Cochabamba toward Villa Tunari, alt. 1850, collected 17 Jan. 1984 by R. Vásquez, J. and C. Luer, flowered in cultivation at Colomborquídeas 8 May 1985, *C. Luer 11300* (Holotype: MO).
ECUADOR: **Pastaza**: near Puyo, alt. 1000 m, Oct. 1983, *A. Hirtz 1301* (MO).

This small species is known from the east flank of the Andes of Ecuador and Bolivia, and it most certainly occurs in intervening Peru. The winged ramicauls are shorter than the narrow, acute leaves they bear, and they are only slightly dilated at the junction with the leaf where the inflorescence is borne.

The flowers are most similar to those of *P. wyvern*, but only half the dimensions. The sepals are fleshy and densely short-pubescent, the petals are obtuse and serrate, and the thick lip is distinguished by a prominent pair of calli on the middle third and a pair of small, erect lateral lobes on the lower third.

Pleurothallis tikalensis Correll & C.Schweinf., Fieldiana Bot. 31: 190, 1965.

Ety.: Named for Tikal, the province and park in Petén, where the species was collected.
Syn.: *Acianthera tikalensis* (Correll & C.Schweinf.) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant medium in size, epiphytic, shortly repent to caespitose; roots slender. Ramicauls relatively stout, slightly compressed above, suberect to horizontal, 2-4.5 cm long, enclosed by a tubular sheath from below the middle and 2-3 sheaths at the base. **Leaf** more or less horizontal, suffused with purple, especially on the delineated margins, coriaceous, elliptical-ovate, acute to subacute, 4-11 cm long, 1.8-2.7 cm wide, cuneate below at the sessile base. **Inflorescence** a congested, distichous, simultaneously several-flowered raceme, 3-4 cm long, including the peduncle ca. 1 cm long, borne from a spathe 1-1.4 cm long at the base of the leaf; floral bracts 2-3 mm long; pedicels 1.5-2 mm long; ovary 1.5 mm long; **sepals** fleshy, minutely pubescent externally, glabrous within, rose, striped and suffused with darker purple, the dorsal sepal narrowly oblong, acute, 9 mm long, 2.5 mm wide, prominently 3-striped, the lateral sepals yellow, suffused with purple, connate into a broadly ovate, bifid lamina, 8 mm long, 7 mm wide expanded, deeply concave below the middle, the apices acute, in apposition; **petals** translucent, suffused with purple, flabellate, denticulate, unguiculate below the middle, 4.5 mm long, 3 mm wide, broadly obtuse at the apex, apiculate, the claw 2 mm long; **lip** thick, oblong-ovoid, 3-lobed, 4.5 mm long, 2 mm wide, the apex yellow-brown rounded, verrucose, minutely denticulate, the sides erect below the middle with low, erect, rounded lobes, the disc speckled with purple, pink below the middle, shallowly concave medially between a pair of thick, calli occupying the middle two-thirds of the lip; the base truncate, bilobulate, hinged to the column-foot; **column** winged above the middle, 3 mm long, the foot thick, 2 mm long, the anther, rostellum and stigma ventral.

GUATEMALA: **Petén**: Tikal National Park, Tikal, bordering Aguado Seca, 14 Oct. 1959, *E. Contreras 280* (Holotype: LL); among the ruins at Tikal, collected by F. Fuchs, Jr., cultivated 11 Dec. 1975, *C. Luer 068* (SEL).
BELIZE: Orange Walk District: Richmond Hill, alt. 150 m, 14 Dec. 1978, *B.R. Adams B-7* (K).
MEXICO: **Campeche**: south of Xpujil, alt. 300 m, *J.M. Andrews sub Hagsater 3942* (SEL).

This species, allied to *P. pubescens*, occurs at low altitudes from eastern Mexico, across Guatemala into Belize. It is distinguished by the leaves with a marginal delineation and a short raceme of fleshy, purple-striped flowers. The synsepal is deeply concave at the base with the column-foot. The petals are broadly flabellate and minutely fringed. The lip is oblong with small, rounded, lateral lobes below the middle.

Pleurothallis toachica Luer & Dodson, Lindleyana 11: 188, 1996.

Ety.: Named for the valley of Río Toachi where this species was discovered.

Plant medium in size, epiphytic, ?caespitose; roots unknown. Ramicauls incomplete, more than 10 cm long, slender, erect. **Leaf** erect, coriaceous, elliptical, acute, 9-11 cm long, 3-4 cm wide, cuneate into the sessile base. **Inflorescence** a simultaneously 5- to 7-flowered raceme, 4-5 cm long including the stout peduncle 1-1.5 cm long, subtended by a spathe 7-8 mm long from the base of the leaf; floral bracts 2-4 mm long; pedicels 1.5-2 mm long; ovary 3-5 mm long; **sepals** fleshy, the dorsal sepal green, narrowly obovate, obtuse, 9 mm long, 2 mm wide, 3-veined, the lateral sepals red-brown, connate into an ovate, obtuse, shortly bifurcate into a pair of minutely acuminate apices, 8 mm long, 5 mm wide, 6-veined; **petals** oblong, obovate, with the margins serrate, rounded at the apex, 3.5 mm long, 1.5 mm wide, 3-veined, with the lateral veins thickened, subdenticulate; **lip** dark brown, thick, oblong, 4 mm long, 1.8 mm wide, the apex broadly rounded, denticulate, the sides broadly elevated and subdenticulate below the middle,the disc with a thin pair of lamellae within the margins below the middle, becoming low, broad calli above the middle, channeled between the calli medially anterior to a thick callus rising from a cavity at the base, the base cuneate, concave, minutely hinged to the column-foot; **column** stout, 3 mm long, denticulate at the apex, the foot thick, 1 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Pichincha**: epiphytic in forest along the old road between Chiriboga and Santo Domingo, alt. 1200 m, 3 Apr. 1986, *C.H. Dodson & D. D'Alessandro 16374A* (Holotype: MO).

This species is known from only one collection from the old road between Chiriboga and Santo Domingo. It is related to *P. quadriserrata* which is found farther toward the coast at a lower altitude. The petals of both species have crests along the lateral veins. However, the petals of *P. toachica* are rounded at the apex, not acute, and the crested lateral veins are thickened and medial, instead of thin and just within the margins. In addition, the flowers are not striped; the dorsal sepal is narrowly obovate and obtuse, instead of narrowly triangular and acute; and the lamellae of the lip are absent in *P. quadriserrata*.

Pleurothallis tokachii Luer, Lindleyana 12: 55, 1997.

Ety.: Named in honor of Kenneth Tokach of Tacoma, WA, who discovered this species.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, 5-15 cm long, sharply 3-winged, slightly broader at the junction with the leaf, 5 mm wide, with 2-3 thin, tubular sheaths at the base. **Leaf** erect, rigidly coriaceous, narrowly elliptical, acute, 7-8.5 cm long, 1.5-2 cm wide, sessile with the margins continuous with the wings of the ramicaul. **Inflorescence** a congested, successively 2- to 3-flowered raceme, 5-6 mm long including the peduncle 3 mm long, from a fugacious spathe, from the apex of the ramicaul at the base of the leaf; floral bracts inflated, 3 mm long; pedicels 1.5 mm long; ovary densely short-pubescent, 1 mm long; **sepals** brown, suffused with darker brown, fleshy, ciliate, shortly pubescent externally, lightly verrucose within above the middle, the dorsal sepal obovate, obtuse, convex above the middle, 7 mm long, 3 mm wide, 3-veined, connate to the lateral sepals for less than 1 mm, the lateral sepals connate into an orbicular lamina, deflexed above the base, with the central portion convex, 5 mm long, 6 mm wide, 6-veined, the apex rounded; **petals** black, obovate, obtuse, shortly acuminate, 2.25 mm long, 1.75 mm wide, with the margins microscopically denticulate above the middle, 1-veined; **lip** orange-brown, thick, fleshy, ovoid-trilobed, 2.25 mm long, 2 mm wide, the apex ovate, obtuse, with inverted, verrucose margins, the sides deflexed, irregularly denticulate, the basal lobes erect, rounded, the disc with a pair of thick verrucose calli filling the middle third, the base truncate, hinged to the column-foot; **column** black, stout, obtusely winged above the middle, denticulate-erose, 2 mm long, the foot 1 mm long, the anther, rostellum and stigma ventral.

PERU: **Amazonas**: near Pomacochas, Feb. 1993, flowered in cultivation in Tacoma, WA, Oct. 1993, *K. Tocach P-16* (Holotype: MO), C. Luer illustr. 17029.

This species is known only from the original collection in Amazonian Peru by Kenneth Tokach. The ramicauls are sharply winged with the few-flowered inflorescence emerging from the apex at the base of the leaf. The flowers are fleshy with the brownish sepals ciliate, shortly pubescent externally and lightly verrucose within. The laterals are connate into an orbicular, deflexed, convex lamina. The lip is very thick with erect basal lobules and a broad, verrucose, inflexed apex with deflexed sides. A pair of thick, verrucose calli occupies the middle of the disc.

Pleurothallis tricarinata Poepp. & Endl., Nov. Gen. Sp. 1: 49, 1836.

Ety.: From the Latin *tricarinatus*, "tricarinate," referring to the three sepals.

Syn.: *Pleurothallis acutangula* H.Wendl. & Kraenzl., Xenia Orch. 3: 169, 1900.
Ety.: From the Latin *acutangulus*, "acutely angled," referring to the ancipitous peduncle.

Syn.: *Pleurothallis trialata* Rolfe, Bull. N.Y. Bot. Gard. 4: 449, 1907, not (Barb.Rodr.) Cogn. 1896.
Ety.: From the Latin *trialatus*, "three-winged," referring to the tricarinate flowers.

Syn.: *Pleurothallis platystachys* Regel, Gartenfl. 37: 459, 1888.
Ety.: From the Greek *platystachys*, "a broad spike," referring to the flattened appearance.

Syn.: *Humboldtia tricarinata* (Poepp. & Endl.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Pleurothallis triptera* Schltr., Repert. Spec. Nov. Regni Beih. 10: 68, 1922.
Ety.: From the Greek *tripteron*, "three wings," referring to the ramicaul.
Syn.: *Acianthera tricarinata* (Poepp. & Endl.) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant medium to large, epiphytic, caespitose to shortly repent, with the rhizome stout, 0.5-1 cm long; roots slender. Ramicauls erect, terete at the base, becoming slightly compressed above, 5-11 cm long, enclosed below by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical-ovate, acute to subacute or obtuse, 5-12 cm long, 2-3 cm wide, the base cuneate, sessile. **Inflorescence** an erect, distichous, simultaneously few- to many-flowered raceme, 10-20 cm long, subtended by a spathe 10-15 mm long at the base of the leaf; floral bracts conspicuous, broadly expanded, conduplicate, acute, often enclosing much of the flower, 5-15 mm long; pedicels 1.5-2 mm long; ovary 3-4 mm long; **sepals** green, yellow or orange, sometimes striped with brown or purple, glabrous, fleshy, deeply and thickly carinate, the dorsal sepal oblong, acute, 8-11 mm long, 2-2.5 mm wide, the lateral sepals connate to near the apex into a thick, oblong, shortly and acutely bifid, bialate synsepal, 8-11 mm long, 3.5-4.5 mm wide together, biapiculate; **petals** yellow with purple midvein, obovate, obtuse, 4 mm long, 1 mm wide; **lip** variously suffused with dark purple, thick, oblong, obtuse, 5 mm long, 2 mm wide, the disc shallowly concave between marginal calli on the middle third, the base subtruncate, hinged to the column-foot; **column** semiterete, narrowly-winged, 3.5 mm long, with a thick foot 2 mm long.

PERU: **Huánuco**: Cuchero, Feb. 1830, *E. Poeppig 1733, t. 87* (Holotype: W); above Tingo Maria, alt. 850 m, 29 Dec. 1987. *E. Jara B-4214* (MO). **Cuzco**: Urubamba, alt. 2500 m, *Vargas 3403* (AMES, CUZ). ECUADOR: **El Oro**: above Zaruma, 1989, collected and cultivated in Chamblee, GA, 29 Oct. 1991, *F L Stevenson 91-1017-7* (MO). **Morona-Santiago**: along Río Yunganza, alt. 950 m, 17 Feb. 1986, *C. Luer, J. Luer, A. Hirtz et. al. 11858* (MO); north of Limón, alt. 1000 m, 5 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12633* (MO); along Río Calagras, alt. 1550 m, 19 Jan. 1989, *C. Luer, J. Luer, A. & P. Jesup 14022* (MO); between Mendez and Morona, alt. 800-1000 m, 22 Nov. 1989, *C.H. Dodson, N. Williams, E. Hagsater & M. Whitten 17766* (MO). **Zamora-Chinchipe**: along Río Zamora, west of Zamora, alt. 950 m, 20 Feb. 1986, *C. Luer, J. Luer, A. Hirtz et al. 11952* (MO); Cordillera del Condor, along Río Yanganitza, alt. 850 m, 20 May 1988, *C. Luer, A. Hirtz et al. 13493* (MO).
BOLIVIA: Without locality, *M. Bang 1816a* (holotype of *P. trialata*: NY). **La Paz**: Nor Yungas, near Coroica, collected Aug. 1991, cultivated in Quito, May 1992, *A. Hirtz 5791* (MO).
BRAZIL: **Rio de Janeiro**: without locality, *A. Glaziou 5488* (W); Sept. 1892, *A. Glaziou 19886* (C, K); Itatiaya, alt. 1000-1400 m, Sept. 1901, flowered in cultivation at W, *R. v. Wettstein & V. Schiffner s.n.* (W). **São Paulo**: Alto da Serra, Estaçâ Biologica, 13 Oct. 1935, *O. Handro s.n.* (K); Pirajussára, 14 Nov. 1937, *A. Gehrt s.n.* (AMES, SP-39049). **Minas Gerais**: Juis de Fora, Fazenda São Mateus, 20 Sept. 1968, *V. Gomes 14* (AMES, HB, K, M). Without collection data, imported from Brazil by Shuttleworth, cultivated at Herrenhausen by *H. Wendland s.n.* (holotype of *P. acutangula*: lost at B).

This species is widely distributed in the Andes at relatively low altitudes from southern Ecuador into southern Brazil. It is easily recognozed by the relatively large habit; terete ramicauls somewhat compressed above and shorter than sessile, elliptical leaves; and a stout, few- to many-flowered raceme longer than the leaves. The whole inflorescence appears flattened from the compressed peduncle to the conspicuous, alternating floral bracts that enclose a part of, if not most of the flower. The flowers are also compressed with fleshy, tall-carinate sepals.

Pleurothallis venulosa Luer & Vásquez, sp. nov.

Ety.: From the Latin *venulosus*, "with conspicuous little veins," referring to the veins of the sepals.

Species haec *P. lojae* Schltr., affinis, sed sepalorum petalorumque veniis subcarinatis conspicuis, et labello carinis intramarginata differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, ascending to pendent, 1.5-3.5 cm long, with a loose, tubular sheath on the middle third, and 1-2 sheaths at the base. **Leaf** dark purple-brown, erect in relation to the ramicaul, thickly coriaceous, narrowly elliptical-ovate, acute, 3-6 cm long, 0.9-1.1 cm wide, cuneate below into the sessile base. **Inflorescence** a simultaneously few-flowered raceme, 1-1.5 cm long including the peduncle less than 5 mm long, borne on top of the leaf, subtended by a spathe 5 mm long at the base of the leaf; floral bracts 1.5 mm long; pedicels 1 mm long; ovary 1.75 mm long; **sepals** fleshy, yellow, suffused with red-brown, with the veins subcarinate externally, the dorsal ovate, acute, glabrous externally with thick, elevated veins, glabrous or at most cellular within, 6 mm long, 2 mm wide, 3-veined, the lateral sepals connate into an ovate, obtuse, shortly bifid lamina with the apices acute, 5.5 mm long, 4 mm wide, 6-veined; **petals** translucent yellow with a thick, red midvein, obovate, subacute, minutely denticulate above the middle, 2.5 mm long, 0.75 mm wide, 1-veined; **lip** red-brown, thick, ovoid, 3.25 mm long, 1.3 mm wide, the apex obtuse to rounded, minutely verrucose, the sides erect and broadly rounded below the middle, with intramural calli near the middle, the disc shallowly concave between denticulate calli below the middle; the base subtruncate, hinged to the tip of the column-foot; **column** slender, 3 mm long, the anther protuberant, unhooded at the apex, the foot ca. 1 mm long, the rostellum and stigma ventral.

BOLIVIA: **Cochabamba**: Chapare, road to Villa Tunari, alt. 2850 m, 29 Jan. 1984, *C. Luer, J. Luer & R. Vásquez 9477* (Holotype: SEL).

This species is superficially similar to the widely distributed and relatively frequent *P. lojae*, but it is distinguished from the latter narrower leaves and a shorter raceme. Although similar, the veins of the sepals are conspicuously thickened, or subcarinate. The single vein of the lip is also prominently thickened. The lip is thick with erect, rounded margins below the middle with intramural calli near the middle and a pair of verrucose calli in the disc below the middle.

Pleurothallis verecunda Schltr., Repert. Spec. Nov. Regni Veg. Beih. 17: 24, 1922.

Ety.: From the Latin *verecundus*, "bashful or modest," perhaps for the unpretentious habit.

Syn.: *Acianthera verecunda* (Schltr.) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant medium in size to large, epiphytic, shortly repent to caespitose; roots slender. Ramicauls slender, erect, terete, 8-18 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect, thickly coriaceous, suffused with purple, elliptical, acute, 8-14 cm long, 2-4 cm wide, cuneate below to the base, sessile. **Inflorescence** a loose, distichous, simultaneously several-flowered raceme, 3-4 cm long including the peduncle 1-1.5 cm long, subtended by a spathe 8-12 mm long, at the base of the leaf; floral bracts 1.5-2 mm long; pedicels 1 mm long; ovary 1.5-2 mm long; **sepals** fleshy, glabrous externally, slightly verucose within, subcarinate, green, mottled with purple, the dorsal sepal oblong-obovate, acute, apiculate, 8 mm long, 2.5 mm wide, 3-veined, the lateral sepals elliptical-ovate, acute, 7-8 mm long, 2.5-3 mm wide, 3-veined, connate to about the middle; **petals** purple, obovate-spathulate, obtuse, minutely denticulate, 2.5 mm long, 1-1.5 mm wide, 1-veined; **lip** spotted with purple, thick, oblong-trilobed, obtuse to rounded at the apex, 3.5-4 mm long, 1.5-2 mm wide, microscopically verrucose-denticulate, the sides erect below the middle with acute, triangular, retrorse lobes between the middle and basal thirds, the disc shallowly sulcate between a pair of low parallel, slightly verrucose calli above the middle, the base broadly subunguiculate, truncate, minutely bilobed at the angles, hinged to the column-foot; **column** winged above the middle, 2.5-3 mm long, denticulate at the apex, the foot thick, 2 mm long, the anther, rostellum and stigma ventral.

PANAMA: **Panama**: Hills east of Panama City, sea level, fall 1919, *C.W. Powell 91* (Holotype of *P. verecunda* destroyed at B; Lectotype here designated: AMES, Isolectotype: MO); Canal Zone, Barro Colorado, 1932, *O.E. Shattuck 722* (MO); Barro Colorado Island, 11 Apr. 1968, *T.B. Croat 4680* (MO).
COSTA RICA: **Heredia**: Sarapiqui region, La Selva, 2 Sept. 1961, *C. Weber 6139* (AMES).
COLOMBIA: **Valle del Cauca**: without locality, cultivated at Orquídeas del Valle, Mar. 1997, *C. Luer 18437* (MO).
ECUADOR: **Cotopaxi**: on fence-post between La Mana and Estero Hondo, alt. 300-400 m, 2 Mar. 1987, *C.H. Dodson, A. & X. Hirtz 17046* (MO).

This species occurs at low altitudes from Costa Rica in Central America and coastal South America into Ecuador. It is characterized by an acute, elliptical, thickly coriaceous leaf borne by a terete ramicaul. The raceme is short with a few, fleshy, purplish flowers bornne in a short raceme. The sepals are acute, the laterals semiconnate; the petals are minutely serrate; and the lip is thick with acute, retrorse marginal lobes between the middle and basal thirds.

Pleurothallis violacea A.Rich. & Galeotti, Ann. Sci. Nat. ser. 3, 3: 16, 1845.
Ety.: From the Latin *violaceus*, "violet," referring to the color of the leaves and flowers.

Syn.: *Pleurothallis amoena* A.Rich. & Galeotti, Ann. Sci. Nat. ser. 3, 3: 16, 1845.
Ety.: From the Latin *amoenus*, "delightful," referring to qualities of the flowers and plant.

Syn.: *Pleurothallis cochlearis* Rchb.f., Bot. Zeitung (Berlin) 10: 761, 1852.
Ety.: From the Latin *cochlearis*, "shell-shaped," referring to the concave, inflated flower.

Syn.: *Humboldtia amoena* (A. Rich. & Galeotti.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Humboldtia cochlearis* (Rchb.f.) Kuntze, Rev. Gen. Pl. 2: 667, 1891.

Syn.: *Humboldtia violacea* (A. Rich. & Galeotti.) Kuntze, Rev. Gen. Pl. 2: 668, 1891.

Syn.: *Pleurothallis rhynchoglossa* Schltr., Orchis 9: 91, 1915.
Ety.: From the Greek *rhynchoglossa*, "snout-like tongue," referring to the lip.
Syn.: *Acianthera violacea* (A.C.Rich. & Galeotti) Pridgeon & M.W.Chase, Lindleyana 16: 246, 2001.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls more or less horizontal, slender, 4-6 cm long, with 2-3 thin, tubular sheaths below the middle. **Leaf** horizontal to pendent, thickly coriaceous, suffused with purple, ovate, acute, 8-11.5 cm long, 1.7-2.5 cm wide, cuneate below into the sessile base. **Inflorescence** a congested, simultaneously 3- to 5-flowered raceme, ca. 2 cm long including the peduncle 0.5-1 cm long, borne on top of the leaf, subtended by a spathe 5 mm long, at the base of the leaf; floral bracts 1.5 mm long; pedicels 1.5-2 mm long; ovary dark purple, 2 mm long; **sepals** translucent, mottled in purple, fleshy, glabrous, the dorsal sepal mottled in stripes, elliptical-oblong, acute, 6.5 mm long, 1.8 mm wide, 3-veined, the lateral sepals lightly connate into deeply concave, ovoid synsepal, 6.5 mm long, 8 mm wide, expanded, the apex shallowly bifid with the tips apiculate; **petals** translucent, narrowly oblong, obtuse, 2.75 mm long, 0.3 mm wide, 1-veined in purple; **lip** yellow, marked with red, thick, oblong-trilobed, unguiculate, 3.5 mm long, 1.5 mm wide unexpanded, rigid, the apex obtuse, subverrucose, the lateral lobes below the middle, erect, broadly triangular, subacute, the disc with a large, tall callus above the claw, the claw curved, bilobed at the basal angles, hinged between to the column-foot; **column** yellow-green, semiterete, shallowly winged, 2.5 mm long, bidentate at the apex, the foot purple, thick, 2.5 mm long, the anther, rostellum and stigma ventral.

MEXICO: de Real del Monte, alt. 7,000 ft., 1840, *H. Galeotti 5228* (holotype of *P. violacea* and *P. amoena*: W; isotype: P; illustr. at AMES); near Zacuapan, cultivated at the Darmstadt Botanical Garden, Mar. 1914, collected by *C.A. Purpus s.n.* (holotype of *P. rhynchoglossa* destroyed at B). Without collection data, cultivated in the Dresdner Botanical Garden, 1844, (holotype of *P. cochlearis*: W).
GUATEMALA: **Alta Verapaz**: Quebrada Seabras, Finca Arenal, 6 Mar. 1939, *C.L. Wilson 287* (AMES); between Trece Aguas and Senahu, alt. 940 m, 28 Feb. 1981, *C. Luer, J. Luer, M. Dix & M. Dix 5949* (SEL).

This very distinguished species, uncommon in Mexico and Guatemala, is without close allies. It was first collected by Galeotti, and two of his specimens with the same collection number (*5228*) represent the holotypes of *P. amoena* and *P. violacea* at Vienna. They were published simultaneously on the same page.

Accompanying the holotype of *P. violacea* is another sheet with an accurate watercolor painting. Accompanying the holotype of *P. amoena* is a watercolor painting labelled *P. amoena*, but this might be *P. oestlundiana* of subgenus *Effusia* with the number *123* and El Mirador, 3,400 ft., 1840. A badly mutilated flower from the holotype has been rehydrated in ammonia, and a petal and the basal two-thirds of the lip leave no doubt that this flower is the same as *P. violacea*. Although the description of *P. violacea* follows that of *P. amoena*, *P. violacea* is retained because of conventional use of the name in many publications.

Pleurothallis viridis Luer & Hirtz, Lindleyana 11: 194, 1996.
Ety.: From the Latin *viridis*, "green," referring to the color of the flowers.

Plant medium to large in size, epiphytic, shortly repent to caespitose, the rhizome ca. 5 mm long between ramicauls; roots slender. Ramicauls slender, erect, 5-14 cm long, with a tubular sheath on the lower fourth and 1-2 other sheaths at the base. **Leaf** erect, thinly coriaceous, elliptical-ovate, acute, acuminate, 7-11 cm long, 2-4.5 cm wide, the base cuneate, sessile. **Inflorescence** racemose, the raceme, erect, strict, subcongested, distichous, simultaneously 3- to 6-flowered, 2.5-3.5 cm long including the peduncle ca. 1 cm long, from a spathe 1 cm long, at the base of the leaf; floral bracts oblique, 3 mm long; pedicel less than 1 mm long; ovary 3 mm long; **sepals** green, glabrous, subcarinate, the dorsal sepal

narrowly obovate, acute, 9 mm long, 2 mm wide, 3-veined, the lateral sepals connate into an oblong synsepal, 7.5 mm long, 5 mm wide, 6-veined, the apex obtuse, shortly bifid with the tips shortly apiculate; **petals** green with 2 purple, carinate veins, obliquely oblong, obtuse, minutely denticulate, 3.5 mm long, 1.5 mm wide; **lip** dark purple, thick, oblong, obtuse, 3.5 mm long, 1.5 mm wide, the margins minutely denticulate, erect in the lower third, with a 2 pairs of parallel calli through the middle third, cleft between another pair of calli above the base, the base narrowly truncate, narrowly hinged to the tip of the colum-foot; **column** terete, 2.5 mm long, minutely denticulate at the apex, the foot stout, 1 mm long, the anther, rostellum and stigma ventral.

EDUADOR: **Morona-Santiago**: epiphytic in forest along Río Yunganza below Limón, alt. 1000 m, 19 Jan. 1989, *C. Luer, J. Luer, P. Jesup & A. Jesup 14003* (Holotype: MO); same area, alt. 950 m, 17 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11856* (MO); between Limón and Cuenca, alt. 700 m, 20 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4173* (MO). **Pichincha**: trees along Dos Ríos, old road between Quito and Santo Domingo, alt. 1200 m, collected by C.H. Dodson, cultivated at Río Palenque, 31 Jan. 1987, *C. Luer 12560* (MO).

This species, known from both sides of the Andes of Ecuador, is closely related to the frequent and widely distributed *P. lanceana*. From the latter, *P. viridis* is distinguished by the thin, elliptical, acuminate leaves; a few-flowered raceme of smaller, green flowers shorter than the leaf; obtuse, minutely denticulate, green petals with a pair of purple, carinate nerves; and an oblong, minutely denticulate lip with denticulate carinae.

Pleurothallis wageneriana Klotzsch, Allg. Gartenzeitung 20: 274, 1852.

Ety.: Named in honor of Hermann Wagener who first collected this species.

Syn.: *Pleurothallis convexifolia* Barb.Rodr., Gen. Sp. Orch. Nov. 1: 17, 1877.
Ety.: From the Latin *convexifolius*, "convex-leaved," referring to the leaves.

Syn.: *Pleurothallis xylobiochila* Kraenzl., Arkiv. Bot. Stockh. 16(8): 9, 1921.
Ety.: From the Greek *xylobiocheilos*, referring to a similarity of the lip to species of *Xylobium*.

Syn.: *Pleurothallis dasychila* Luer, Selbyana 3: 286, 1977.
Ety.: From the Greek *dasycheilos*, "shaggy lip," referring to the labellum.
Syn.: *Acianthera wageneriana* (Klotzsch) Pridgeon & M.W.Chase, Lindleyana 16: 247, 2001.

Plant medium in size to large, terrestrial, presumably also epiphytic, shortly repent with the rhizome stout, 0.5-2 cm long between ramicauls; roots slender. Ramicauls erect, 8-23 cm long, terete, with 3-5 more or less evenly spaced, tubular sheaths. **Leaf** erect, thickly coriaceous, elliptical, acute to subacute, 7-20 cm long, 1.5-3 cm wide, with the base cuneate, sessile, more or less conduplicate. **Inflorescence** a congested, successively few-flowered raceme, less than 0.5 cm long including the thick peduncle 1 mm long, subtended by a fugacious spathe, from the apex of the ramicaul at the base of the leaf; floral bracts 3-5 mm long; pedicel thick, 1-3 mm long; ovary more or less minutely verrucose, 2-3 mm long; **sepals** dull yellow-green or yellow-brown, sufffused with purple or red, rigidly fleshy, variously minutely verrucose externally and within, the dorsal sepal oblong-obovate, obtuse, 6-10 mm long, 2.2-3.5 mm wide, 3-veined, the lateral sepals lightly connate into an elliptical-ovate, obtuse synsepal, 6-9 mm long, 5-7 mm wide, 6-veined, concave at the base; **petals** translucent yellow, edged or veined in red-purple, elliptical-oblong, obtuse, thickened externally, 3-4.5 mm long, 1-2 mm wide, 1-veined; **lip** dark red-orange, variously suffused with purple, to black, thick, trilobed, 3-4.5 mm long, 2-2.5 mm wide, the apical lobe oblong, obtuse, more or less rounded, retuse or shallowly bifid, smooth, faintly verrucose to coarsely verrucose, the lateral lobes at the middle, erect, broadly rounded, with acute to obtuse anterior angles, the disc shallowly concave betwcen the thick sides, the base subtruncate, hinged to the column-foot; **column** semiterete, arcuate, 3-4 mm long, the foot thick, 1.5 mm long, the anther, rostellum and stigma ventral.

VENEZUELA: Caracas, *H. Wagener 344* (Holotype: W). Without collection data, *H. Karsten s.n.* (W). **Zulia**: Sierra de Perija, Río Omira-kuná, alt. 1160 m, 30 Mar. 1972, *J.A. Steyermark, G.C.K. & E. Dunsterville 106517* (AMES, VEN); Without locality, *H. Karsten s.n.* (W); without locality, Sept. 1983, *G.C.K. Dunsterville 814*; without locality, May 1973, *G.C.K. Dunsterville 1277*.
COLOMBIA: Without data, cultivated at Colomborquídeas, 26 Apr. 1997, *R. Escobar 8345, 8371* (MO).
ECUADOR: **Loja**: terrestrial on road embankment north of Loja, alt. 2000 m, 5 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1545* (holotype of *P. dasychila*: SEL); same area, 4 Oct. 1961, *C.H. Dodson & L.B. Thien 1144* (SEL). **Zamora-Chinchipe**: Valladolid, 1 Nov. 1876, *E. André 4410* (K).
PERU: **Amazonas**: Bongara, vicinity of Campomiento Ingenio, alt. 1300-1400 m, 27 Jan. 1964, *P.C. Hutchison & J.K. Wright 3832* (AMES, UC).
BRAZIL: convexifolia: **Minas Gerais**: Serra de Caldas, *Regnell III 1679* (BR).
Paraná: near Jaguariahyva, 12 Mar. 1911, *P. Dusén 11583* (holotype of *P. xylobiochila*: S; isotype: AMES), C. Luer illustr. 16996. Without locality, cultivated at the Rio de Janeiro Botanical Garden, 28 Nov. 1989, *C. Luer 14488* (MO).

This species occurs infrequently in its wide distribution through the Andes from Venezuela into Brazil and Argentina. In southern Ecuador it grows on exposed, rocky hillsides. The ramicaul is erect, terete, and clothed by a few, more or less evenly spaced, tubular sheaths. Flowers are produced successively in a very abbreviated raceme, appearing in the fold at the base of the thickly coriaceous leaf. The flowers are thickly fleshy with the lateral sepals only weakly connate, separating easily. The anterior lobe of the three-lobed lip varies from smooth, slightly verrucose to coarsely verrucose. The broadly rounded, lateral lobes occupy the basal half of the lip with the anterior margin subacute or obtuse.

Although the population found in southern Ecuador, described as *P. dasychila*, varies from all the others in having the anterior lobe of the lip the most markedly verrucose, all other morphological features subsequently have been found in varying proportions throughout the range. The interpretations of the lip by illustrators vary.

Pleurothallis wyvern Luer & Escobar, Orquideología 14: 184, 1981.

Ety.: From the Old English *wyuern*, "a winged dragon of heraldry," in allusion to the appearance of the gaping flowers on the shield-like leaf.

Syn.: *Acianthera wyvern* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 247, 2001.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls erect, terete at the base, gradually becoming sharply winged above, 9-20 cm long, 1-1.5 cm wide at the junction with the leaf, with early-fragmenting basal sheaths. **Leaf** erect, thinly coriaceous, elliptical-ovate, acuminate, acute, 11-22 cm long, 3.5-6.5 cm wide, the base cuneate, decurrent on the stem for 1-3.5 cm. **Inflorescence** a crowded raceme of 4 to 6 fleshy flowers reclining on the blade of the leaf, 2.5-4.5 cm long, from a usually deciduous spathe 10-15 mm long at the apex of the secondary stem imbedded well above the base of the leaf; floral bracts infundibular, 3 mm long; pedicels 2.5 mm long; ovary 2 mm long, densely short-pubescent; **sepals** dark purple, fleshy, shortly pubescent externally, glabrous within but verrucose in the upper thirds, the dorsal sepal oblong, obtuse, apiculate, 10 mm long, 3.5 mm wide, the lateral sepals connate to near the apex into a thick, oblong, concave synsepal, 10 mm long, 7.5 mm wide together, with the apex shortly bifid, biapiculate; **petals** purple with a dark purple midvein, obovate, subacute, erose above the middle, 4.5 mm long, 1.75 mm wide; **lip** dark purple, thick, oblong-obovate, 3-lobed, 6.5 mm long, 3 mm wide, the apical lobe oblong, rounded, verrucose with erose margins, the lateral lobes erect below the middle, oblong, oblique, subacute, 1 mm long, the base hinged to the column-foot between a minute pair of membranous auricles, the disc with a rounded callus above the base and with a pair of verrucose calli extending forward onto the anterior lobe from the bases of the lateral lobes; **column** semiterete, denticulate-winged, 4.5 mm long, with a thick foot 2 mm long.

COLOMBIA: **Putumayo**: epiphytic in cloud forest east of the pass toward Mocoa from Sibundoy, alt. 2200 m, 20 Jan. 1979, *C. Luer, J. Luer & O. Ospina et al. 3726* (Holotype: SEL).
ECUADOR: **Morona-Santiago**: west of Macas, new road toward Guamote, alt. 2300 m, 2 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19621* (MO). **Azuay**: collected near Cuenca, cultivated by E. Sánchez in Cuenca, 6 Mar. 2001, *C. Luer 19793* (MO).

Pleurothallis wyvern, characterized by broadly winged ramicauls about as long as the thin, tapered leaves they bear, produces short racemes of grotesque flowers well above the base of the leaf. The gaping, fleshy, pubescent, dark purple flowers present a warty tongue within.

Pleurothallis yauaperyensis Barb.Rodr., Vellosia ed. 2, 1: 116, 1891.

Ety.: Named for the Yauapery River where the species was collected.

Syn.: *Pleurothallis consimilis* Ames, Orchidaceae 7: 116, 1922.

Ety.: From the Latin *consimilis*, "similar," referring to the similarity of the species to others.

Syn.: *Acianthera consimilis* (Ames) Pridgeon & M.W.Chase, Lindleyana 16: 243, 2001.

Syn.: *Acianthera yauaperyensis* (Barb.Rodr.) Pridgeon & M.W.Chase, Lindleyana 16: 247, 2001.

Plant small, epiphytic, long-repent; rhizome slender, 1-4 cm long between ramicauls; roots slender. Ramicauls slender, ascending, suberect, 1.5-3.5 cm long, with a loose, oblique, tubular sheath, and another sheath at the base. **Leaf** more or less spreading, coriaceous, elliptical, subacute, 2.5-4 cm long, 1.5-2 cm wide, cuneate below into the sessile base. **Inflorescence** a single flower, borne by a peduncle

2-2.5 mm long, from a spathe 1-1.5 mm long at the base of the leaf; floral bract 2-2.5 mm long; pedicels 3 mm long; ovary 1.5 mm long; **sepals** purple, fleshy, glabrous, the dorsal sepal oblong-obovate, obtuse, thickened toward the apex, 6.5 mm long, 2 mm wide, 3-veined, the lateral sepals connate into an ovate, concave, obtuse synsepal, 5.5 mm long, 5 mm wide expanded, 6-veined; **petals** translucent, with a purple midvein, obovate, acute, microscopically denticulate above the middle, 3 mm long, 1 mm wide, 1-veined; **lip** ovoid-trilobed, 4.5 mm long, 1.5 mm wide, the apex acute, deeply denticulate, the sides erect below the middle with an erect, serrated, subacute lobe, the disc with a pair of crested carinae on the middle third, thickened above the base and cellular-papillose, truncate, lobed at the corners, hinged to the tip of the column-foot; **column** slender, 2 mm long, denticulate at the apex, the foot 1 mm long, the anther, rostellum and stigma ventral.

BRAZIL: **Amazonas**: near Chichiuahu, on Río Yauapery, tributary of Río Negro, *Barbosa Rodrigues s.n.* (Holotype is Rodrigues's illustr.).
VENEZUELA: **Bolívar**: Sororopán-tepui, Salto de Iwracarú-merú, alt. 1656-1980 m, 15 Nov. 1944, *J.A. Steyermark 60195* (AMES); Cerro Venamo, ridge west of Río Venamo, alt. 950 m, 9 Jan. 1964, *J.A. Steyermark, G.C.K. & E. Dunsterville 92921* (AMES, VEN).
TRINIDAD: Valencia, Mar. 1920, *N.L. Britton, E.G. Britton & T.E. Hazen 1026* (holotype of *P. consimilis*: AMES; isotype: NY).
GUYANA: Aruca, July 1897, *E.F. im Thurn 122* (K); Barinial?, Mar. 1896, *Jenman 6940* (K); between Rupununi and Kuyuwini Rivers, Parabaru Savanna, 15-17 Feb. 1938, *A.C. Smith 3043* (AMES, K, NY, US), C. Luer illustr. 19062.
VENEZUELA: **Falcón**: Sierra de San Luis, rain forest near Curimagua, Dec. 1959, *G.C.K. Dunsterville 836*. **Amazonas**: Guainía, near bridge of Taguaneni, between Yavita and Maroa, alt. 120 m, 28 Oct. 1998, *G.A. Romero et al. 3231* (AMES, VEN), C. Luer illustr. 19049.

This small, long-repent species is relatively frequent in coastal northeastern South America and the Amazonian basin of Brazil and adjacent Venezuela. The ascending ramicauls bear a slightly longer elliptical leaf with a successive, solitary flower at the base. The narrow dorsal sepal is conspicuously longer than the deeply concave synsepal. The petals are microscopically denticulate. The lip is elliptical, deeply denticulate above the middle, with a serrated, lateral lobe below the middle, and with a pair of crested calli on the middle third.

Pleurothallis zumbae Luer & Hirtz, sp. nov.

Ety.: Named for the community of Zumba in southernmost Ecuador, where the species was collected.

Planta mediocris folio angustissime elliptico sessile, racemo bifloro brevissimo, flore carnoso atro-purpureo, synsepalo infra medium profunde concavo, petalis minutissime denticulatis, et labello obovato, apice late rotundo, base bipapilloso, ad medium fissurato calloso minutissine verrucoso differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 7-11 cm long, with a tubular sheath on the lower half above the base and another at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 8-10 cm long, 1.5 cm wide, narrowly cuneate at the sessile base. **Inflorescence** erect, 1- to 2-flowered, peduncle slender, erect, 15 mm long, in a fascicle at the base of the leaf, with a spathe ca. 5 mm long; floral bract close, 2 mm long; pedicel less than 1 mm long; ovary cellular, 2.5 mm long; flowers dark purple; **sepals** fleshy, subcarinate, subverrucose above the middle, the dorsal sepal oblong, obtuse, with the margins recurved above the middle, 9.5 mm long, 3.5 mm wide, 3-veined, the lateral sepals connate 5 mm into a rigidly recurved, obovoid synsepal, 7 mm long, 6 mm wide unexpanded, the apex broadly rounded, shortly bifid with apiculate tips; **petals** translucent, elliptical, contracted above the middle, obtuse, 3.5 mm long, 1.75 mm wide, 1-veined, minutely denticulate; **lip** fleshy, oblong-obovate, the apex broadly rounded, 4 mm long, 2 mm wide, with the margins erect and obtusely angled below the middle, the disc cleft centrally between low, callous halves of the lip, the base concave, truncate, lobulate at the corners, attached to the column-foot; **column** stout, semiterete, 2 mm long, the foot thick, 2.5 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Zamora-Chinchipe**: collected near Zumba, alt. 1200 m, cultivated at Ecuagenera, Gualaceo, Ecuador, 5 July 2002 *A. Hirtz 8266* (Holotype: MO), C. Luer illustr. 20228.

This species of southernmost Ecuador is characterized by a slender ramicaul and an equally long, narrowly elliptical, acute leaf. A dark purple, fleshy flower, often followed by a second, is borne by a peduncle 15 millimeters long in a fascicle at the base of the leaf. With reflexed sides the lateral sepals are decurved beyond the tube, and the arcuate lip lies exposed on the center. The lip is broadly rounded at the apex, and bilobulate at the base.

THREE NEW SUBGENERA IN *PLEUROTHALLIS*

The following three subgenera are proposed for some species that are allied to subgenus *Acianthera*, but differing in significant details.

PLEUROTHALLIS SUBGENUS *ABERRANTIA*

Pleurothallis subgen. **Aberrantia** Luer, subgen. nov.

Type: *Pleurothallis aberrans* Luer.

Ety: From the Latin *aberrans*, "aberrant," in allusion to the combination of unusual morphological characters.

Petala obcuneata lobulata et labellum longi-unguiculatum.

This subgenus is distinguished by thick, obcuneate petals that are lobulate at the apex, and a long-unguiculate lip.

P. aberrans.....Fig. 108.

Pleurothallis aberrans Luer, Selbyana 2: 382, 1978.

Plant medium in size, epiphytic, shortly repent to caespitose; roots slender. Ramicauls stout, ascending to suberect, 4-9 cm long, terete below, slightly compressed and sulcate above, with a loose, tubular sheath below the middle and 1-2 other sheaths about the base. **Leaf** erect in relation to the ramicaul, coriaceous, elliptical to broadly elliptical, acute to obtuse, 4-10 cm long, 2-6 cm wide, the base cuneate, abruptly decurrent upon the ramicaul for 1-3 cm. **Inflorescence** a subcongested or loose, simultaneously 2- to 8-flowered raceme, 1.5-10 cm long including the peduncle ca. 1 cm long, borne on top of the leaf, from a spathe ca. 1 cm long above the base of the leaf; floral bracts 4-5 mm long; pedicels 2-4 mm long; ovary 2-3 mm long; **sepals** green, microscopically ciliate, the dorsal sepal thick above the middle, narrowly obovate, acute, 10-14 mm long, 2.5 mm wide, 3-veined, free from the lateral sepals, the lateral sepals connate into a elliptical-ovate, obtuse, minutely biapiculate synsepal, 9-13 mm long, 4-6 mm wide, 6-veined, forming a conical mentum with the column-foot; **petals** green, obcuneate, 2 mm long, 1 mm wide, the apex truncate, with the angles thickened or lobulate, minutely apiculate; **lip** dark green, obovate, long-unguiculate, the blade 2 mm long, 1.5 mm wide, broadly rounded at the apex, minutely denticulate, the disc with a pair of lamellae ending in rounded calli above the middle, the claw slender, 1-1.5 mm long, hinged to the tip of the column-foot within the mentum; **column** slender, 3-3.5 mm long, hooded at the apex, the foot 2 mm long, the anther, rostellum and stigma ventral.

PANAMA: **Veraguas**: north of the continental divide above Santa Fé, alt. 700 m, 6 Sept. 1976, *C. Luer & R.L. Dressler 1628* (Holotype: SEL).
ECUADOR: **Esmeraldas**: west of Lita, alt. 800 m, 13 Aug. 1986, *A. Hirtz 2969* (MO); between Lita and San Lorenzo, alt. 700-800 m, 12 May 1990, *C.H. Dodson et al. 18254* (MO); west of Lita, alt. 800 m, Nov. 1988, *A. Hirtz 3907* (MO), C. Luer illustr. 16227.

This species occurs uncommonly in humid forests of Panama and lowland western Ecuador. It is characterized by a few-flowered raceme of green flowers borne above the base of a more or less spreading leaf. The base of the leaf is abruptly contracted into a narrowly winged ramicaul. The dorsal sepal is erect and fleshy above the middle; the petals are obcuneate with the truncate apex lobulate; and the lip is long-unguiculate with the claw and column-foot within a conical mentum formed by floor of the synsepal. The petals and lip are foreign to subgenus *Acianthera*.

A leaf with margins decurrent on the ramicaul is found in subgenera *Acianthera, Ancipitia*, and *Scopula*. The inflorescence of the latter two is single-flowered, in addition to a floral structure that is also incompatible with subgenus *Acianthera*.

PLEUROTHALLIS SUBGENUS *DIDACTYLUS*

Pleurothallis subgen. **Didactylus** Luer, subgen. nov.

Type: *Pleurothallis butcheri* L.O.Williams.

Ety: From the Greek *didactylus*, "two-fingered," in allusion to the two-pronged rostellum.

Rostellum brachiatum.

This subgenus is distinguished by the rostellum with two narrow, curved, lateral lobes. Vegetatively, the proposed subgenus is similar to subgenus *Acianthera*: a well-defined ramicaul; a sessile leaf; a terminal, racemose inflorescence emerging at the base of the leaf; and connate lateral sepals. The flowers are strange for the subgenus *Acianthers*. Four species are included.

KEY TO THE SPECIES

1 Sepals lomg-pubescent 2
1' Sepals glabrous 3

2 Lip verrucose ..... *P. butcheri*
2' Lip long-cilate-fimbriate ..... *P. oscitans*

3 Petals glabrous ..... *P. paradoxa*
3' Petals long-fimbriate ..... *P. thysana*

* * *

P. butcheri L.O.Williams ..... Fig. 109.
P. oscitans Ames ..... Fig. 110.
P. paradoxa Luer & Dalström ..... Fig. 111.
P. thysana Luer & Portilla ..... Fig. 112.

Pleurothallis butcheri L.O.Williams, Fieldiana Bot. 29: 346, 1961.

Ety.: Named in honor of Henry P. Butcher who collected extensively in Panama for over 50 years.

Syn.: *Acianthera butcheri* (L.O.Williams) Pridgeon & M.W.Chase, Lindleyana 16: 242, 2001.

Plant medium in size, epiphytic, pendent, caespitose; roots slender. Ramicauls purple, slender, pendent, 2-7.5 cm long, mostly enclosed by a thin, tubular, slightly inflated sheath from below the middle and 2-3 others at the base. **Leaf** pendent, coriaceous, narrowly elliptical, acute, 7-19 cm long, 1-2.5 cm wide, narrowly cuneate into the sessile base. **Inflorescence** a pendent, simultaneously few-flowered raceme, 10-20 cm long including the peduncle 8-14 cm long, borne from a spathe 1-2 cm long at the base of the leaf; floral bracts infundibular, 3-4 mm long; pedicels less than 1 mm long; ovary subcostate, 2 mm long; **sepals** yellow-green with purple spots, sparsely long-pubescent, the dorsal sepal narrowly linear-triangular, acute, 15 mm long, 2 mm wide, 3-veined, the lateral sepals connate 8 mm into an oblong, bifid lamina with revolute sides, 15 mm long, 5 mm wide unexpanded, with the apices acute, more or less incurved, in apposition; **petals** translucent, narrowly obovate, acute, 4 mm long, 1 mm wide, purple along the midvein, minutely lacerate above the middle; **lip** brown, thick, ovoid, subtrilobed, 5.5 mm long, 2 mm wide, the middle lobe ovate, obtuse, verrucose, with minutely serrulate margins, the basal lobes erect, broadly rounded, the disc with a thick pair of verrucose calli on the middle third, the base narrowly unguiculate with a minute pair of lobules, hinged to the column-foot; **column** semiterete, 4 mm long, minutely denticulate at the apex, the foot 3 mm long, the anther, lobulate rostellum and stigma ventral.

PANAMA: **Chiriquí**: epiphyte in mossy cloud forest, along branch of Río Machomonte, vicinity of Volcán, alt. ca. 1300 m, 19 Jan. 1961, *H.P. Butcher 651* (Holotype: F); along Río Cochea and Río Caldera, south of Boquete, 1 Dec. 1964, *R.L. Dressler 2965* (MO); on tree overhanging a canyon stream below Boquete, alt. ca. 1000 m, 18 Dec. 1976, *C. Luer. A. Luer & R.L. Dressler 359* (SEL); circa Pilota de Toro, 4 Dec. 1977, *J.P. Folsom, L. Collins & G. Alonzo 6784* (MO).

This species, closely related to *P. oscitans*, is endemic in western Panama where it grows pendently on branches overhanging rocky streams. The long, narrow leaves and the flexible peduncle hang straight down. The raceme is congested with the sides of the long-ciliated, spotted synsepals encircling the rachis and part of the adjacent flower. The narrowly linear, dorsal sepal points outward. The vertical column of overlapping, spotted, long-ciliate synsepals resembles a dangling caterpillar. The verrucose lip distinguishes *P. butcheri* species from *P. oscitans*

Pleurothallis oscitans Ames, Bot. Mus. Leafl. 2: 25, 1934.

Ety.: From the Latin *oscitans*, "gaping, drowsy," apparently referring to the drooping inflorescence.
Syn.: *Acianthera oscitans* (Luer) Pridgeon & M.W.Chase, Lindleyana 16: 245, 2001.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls purple, slender, erect, horizontal to descending, 6-16 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect in relationship to the ramicaul, coriaceous, suffused with purple, elliptical-ovate, acute, 6-12 cm long, 1.8-3 cm wide, cuneate or rounded below at the sessile base. **Inflorescence** a pendent, flaccid, disctichous, simultaneously few-flowered raceme, 8-11 cm long including the peduncle 4-5 cm long, borne from a spathe 7-8 mm long at the base of the leaf; floral bracts infundibular, 4 mm long, containing the pedicel and much of the ovary; pedicels 1.5 mm long; ovary 2 mm long; **sepals** membranous, carinate, yellow-green, intensely mottled with purple, sparsely long-pubescent, the margins revolute, the dorsal sepal narrowly linear-oblong, 14 mm long, 2.5 mm wide, 3-veined, the acute tip held between the tips of the synsepal, the lateral sepals connate into an elliptical-ovate, minutely bifid lamina with the revolute sides surrounding the rachis, 12 mm long, 7 mm wide expanded, with the apices acute, in apposition; **petals** translucent, ovate, acute, 2 mm long, 1 mm wide, the midvein purple, the margins laciniate; **lip** rose, marked with purple, narrowly ovate, acute, 6 mm long, 2 mm wide, the margins long-ciliate with the hairs branching, the disc with a thick pair of longitudinal calli on the lower half, the base subcordate, hinged to the column-foot; **column** ciliate-winged above the middle, 2.5 mm long, the anther and the bilobulate rostellum and stigma ventral, the foot thick, 1 mm long.

HONDURAS: **Cortes**: Santa Cruz de Yojoa, alt. 2,000 ft., 26 Aug.1933, *J.B. Edwards 515* (Holotype: AMES).
PANAMA: **Coclé**: epiphytic in old orange trees in the hills above El Valle, alt. 1000 m, Mar. 1976, *C. Luer, J. Luer, R.L. Dressler & P. Taylor 681* (SEL); same area, 2 Sept. 1976, *C. Luer & H. Butcher 1123* (SEL).
ECUADOR: *Pichincha*: La Independencia, west of Mindo, alt. 600 m, collected by H. Zelenko, Sept. 1998, *A. Hirtz 6618* (MO), C. Luer illustr. 18943.

Apparently rare, this species is known from three, widely separated localities, one in Honduras, one in central Panama, and the third in lowland northwestern Ecuador. It is not yet known from intervening Nicaragua, Costa Rica, or Colombia. It is characterized by a drooping leaf and a drooping, flaccid raceme of long-pubescent, purple flowes. At first, the tip of the narrow, dorsal sepal is held between the tips of the synsepal, but it eventually becomes free. The revolute sides of the synsepal surround the rachis. The long-ciliate hairs of the lip are branched.

Pleurothallis paradoxa Luer & Dalström, Lindleyana 11: 177, 1996.

Ety.: From the Latin *paradoxus*, "contrary to expectation, strange," referring to the unusual aspects of the plant.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, slightly compressed above, 7-11 cm long, with a closely fitting, tubular sheath at the base as well as 1-2 shorter sheaths. **Leaf** erect, coriaceous, elliptical, acute, 7-9.5 cm long, 2-2.4 cm wide, the base cuneate, sessile. **Inflorescence** an erect?, arching?, loosely few-flowered raceme 3-4.5 cm long including the peduncle ca. 2.5 cm long, from a spathe 5-7 mm long at the base of the leaf; flowers purple, non-resupinate; floral bracts infundibular, 3 mm long; pedicel 2 mm long; ovary 4 mm long, 3-angled; **sepals** glabrous, not widely spread, the middle sepal ovate, acute, lightly acuminate, apiculate, lightly concave, 15 mm long, 8 mm wide, reticulate-3-veined, tall-carinate, the lateral sepals connate into a rigid, tall-bicarinate, ovoid, acute, synsepal with erect sides, convex within, 15 mm long, 7 mm wide unexpanded, 5 mm deep, 4-veined; **petals** spathulate, acute, 2 mm long, 1 mm wide, 1-veined; **lip** ovate, acute, 9 mm long, 4.5 mm wide, the margins finely long-villous, the sides revolute above the middle to form a tube, the disc bicarinate, the base flattened on the end, hinged below; **column** short with the apex dilated, denticulate, 2.5 mm long, the anther hooded, the rostellum with curved, lateral arms, the stigma ventral, the foot thick.

EDUADOR: **Imbabura**: epiphytic in wet forest, Los Cedros Reserve, alt. 1500 m, 25 Jan. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1764* (Holotype: MO), C. Luer illustr. 16609. **Morona-Santiago**: along Río Yanguza between Río Zamora and Limón, alt. 1200 m, 22 Oct. 1999, *A. Hirtz, E. Sánchez & S. Marin 7052* (MO).

This species is distinguished by a well-developed ramicaul; a few-flowered raceme shorter than a rigid, sessile leaf; tall-carinate, boxlike flowers. The middle sepal is accommodated well by the synsepal from which it separates only slightly. The synsepal is formed in the same manner as that of a *Zootrophion* with erect sides above external carinae, and convex within (deeply concave externally). The petals are proportionately very small, hastate and glabrous. The lip is large and tubular above the middle with finely villous, revolute sides. The apex of the column is hooded and minutely denticulate.

Pleurothallis thysana Luer & Portilla, Rev. Soc. Bol. Bot. 3: 62, 2001.

Ety.: From the Greek *thysanos*, "fringed," referring to the petals and lip.

Plant large, epiphytic, caespitose; roots slender. Ramicauls slender, erect?, 15-16 cm long, with a tubular sheath below the middle and 2-3 others at the base. **Leaf** erect in relationship to the ramicaul, coriaceous, elliptical, acute, 8-12 cm long, 2-3.5 cm wide, cuneate below into the sessile base. **Inflorescence** a pendent, flaccid, distichous, simultaneously few-flowered raceme, 7-10 cm long including the peduncle 4 cm long, spathe missing; floral bracts tubular, 3-4 mm long; pedicels 2 mm long; ovary triquetrous, 3 mm long; **sepals** bright orange, fleshy, thickly carinate, glabrous, the dorsal sepal narrowly triangular, acute, attenuate, 21 mm long, 3 mm wide at the base, 3-veined, the lateral sepals connate into an elliptical, concave, subacute, apiculate, bicarinate synsepal, 23 mm long, 8 mm wide unexpanded; **petals** orange, narrowly linear-oblong, arcuate, acute, long-fimbriate above the middle, 5 mm long, 1 mm wide; **lip** orange, narrowly linear-ovate, bilobed at the base, acute, 9 mm long, 1 mm wide, the basal lobes erect, fimbriate, the middle lobe long-ciliate, the disc with an erect pair of rounded calli above the base, the base attached to the column-foot by an inflexible extension; **column** slender, semiterete, 4 mm long, the anther and stigma ventral, the rostellum with narrow, lateral lobes.

ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, near Sinai, alt. 1500 m, collected Nov. 1999, by Hugo Medina, Ivan Portilla & Ivan Acaro, cultivated at Gualaceo, Feb. 2000, *J. Portilla s.n.* (Holotype: MO), C. Luer illustr. 19364.

Apparently rare, this attractive and distinctive species is known only from the original collection from the Cordillera del Cutucú in eastern Ecuador. It is characterized by a large habit; an elliptical, sessile leaf; and an arching, pendent raceme of large, bright orange flowers. The sepals are fleshy-carinate. The dorsal sepal is narrowly attenuate, while the laterals are connate into a boat-shaped synsepal. The petals and long, slender lip are long-fimbriate.

PLEUROTHALLIS SUBGENUS *UNGUELLA*

Pleurothallis subgen. **Unguella** Luer, subgen. nov.

Type: *Pleurothallis lepidota* L.O.Williams.

Ety: From the Greek *unguellus*, "a little claw," in allusion to the jointed claw of the labellum.

Labellum unguiculatum ad pedem columnae articulatum.

This subgenus is distinguished by a narrow claw of a three-lobed lip that articulates with a narrow extension of the column-foot. The two known species grow perpendicularly pendent. The sessile leaves hang from slender ramicauls. The sepals are glabrous with the dorsal sepal narrow, and the synsepal concave below the middle. The petals are glabrous and narrowly linear.

P. cachensis Ames.....Fig. 113.
P. lepidota L.O.Williams .....Fig. 114.

Pleurothallis cachensis Ames, Sched. Orchid. 4: 17, 1923.

Ety.: Named for the community of Cachí, near where this species was discovered.

Plant medium in size, epiphytic, pendent, presumably caespitose; roots unknown. Ramicauls slender, pendent, ca. 14 cm long, with a thin, tubular, slightly inflated sheath below the middle. **Leaf** pendent, coriaceous, narrowly elliptical, acute, 10 cm long, 1 cm wide, cuneate into the sessile base. **Inflorescence** a pendent, successively many-flowered raceme, ca. 5 cm long including the peduncle ca. 1.5 cm long, borne from the base of the leaf, subtended by a spathe 12 mm long; floral bracts infundibular, 2-3 mm long; pedicels 2 mm long, enclosed within the bract; ovary subcostate, 1 mm long; **sepals** "honey yellow," glabrous (cellular-verrucose externally), the dorsal sepal narrowly linear-triangular with involute margins, acute, 7.5 mm long, 1 mm wide, 3-veined, the lateral sepals 8 mm long, connate 4.5 mm into an ovoid, deeply concave lamina, 5 mm wide expanded, terminating in narrowly triangular, acute apices 3.5 mm long; **petals** translucent, narrowly linear, acute, 3 mm long, 0.2 mm wide, 1-veined; **lip** trilobed, 3 mm long, 1 mm wide (2 mm wide across the expanded lobes), the middle lobe ovate, subacute, minutely serrulate, the basal lobes erect, broadly rounded, the disc minutely verrucose on the middle third, the base narrowly unguiculate with a suberect callus below which the claw becomes more slender as it joins the column-foot; **column** semiterete, 3.5 mm long, minutely denticulate at the apex with a protruding pair of obtuse teeth, the foot 2 mm long, the anther, rostellum and stigma ventral.

COSTA RICA: **Cartago**: epiphytic near Cachí, alt. 3,750-4,000 ft., July 1919, *C.H. Lankester 76* (Holotype: K), C. Luer illustr. 17262; Dota, Río Paquita, ca. 1867, *A. Endres s.n.* (W); near Cartago, alt. 5,000 ft., 12 Mar. 1878, *F.C. Lehmann 205* (AMES, W); Navarro, undated, *C.H. Lankester 931* (AMES); Tapantí, alt. 1200 m, Oct. 1927, *Valerio 2436* (AMES).

This species was first collected and illustrated by Endres about 1867; it was collected again by Lehmann ten years later. It was finally described in the twentieth century by Ames from a single ramicaul with leaf and inflorescence attached, collected by Charles Lankester west of his home in Cartago, Costa Rica. The single word "pendent" was written with the collection label, but Ames published the illustration with the plant erect.

Pleurothallis cachensis is characterized by the pendent habit: a slender ramicaul with a loose sheath below the middle; a narrowly elliptical leaf; and shorter, pendent racemes. The dorsal sepal is slender, but the laterals are connate into a deeply concave, inflated synsepal with acute, free apices. The petals are narrowly linear and entire. The lip is trilobed with the basal lobes broadly rounded and erect. The base is long-clawed with a callus below which the claw becomes more slender when it is attached to the narrow tip of the column-foot.

Pleurothallis lepidota L.O.Williams, Ann. Missouri Bot. Gard. 27: 279, 1940.

Ety.: From the Greek *lepidotus*, "with small scales," referring to the scale-like surface of the lip.
Syn.: *Acianthera lepidota* (L.O.Williams) Pridgeon & M.W.Chase, Lindleyana 16: 244, 2001.

Plant medium in size to large, epiphytic, pendent, caespitose; roots slender. Ramicauls slender, pendent, 7-15 cm long, enclosed by 3 inflated, tubular sheaths, the uppermost the largest, often shed. **Leaf** pendent, coriaceous with sharp margins, suffused and veined in purple, elliptical, subacute, acuminate, 9-13 cm long, 3-4.5 cm wide, rounded or cuneate into the sessile base. **Inflorescence** a pendent, flaccid, distichous, successively several-flowered raceme, 5-6 cm long including the peduncle 1-1.5 cm long, borne from a spathe 10-16 mm long at the base of the leaf; floral bracts infundibular, 3-4 mm long; pedicels 2 mm long, enclosed within the bract; ovary minutely pubescent, 1 mm long and broad; **sepals** pale yellow-green, striped with red-purple, glabrous (cellular-verrucose externally), thin-carinate, the dorsal sepal narrowly linear-obovate with involute margins near the middle, acute, 14 mm long, 1.5 mm wide, 3-veined, connate to the lateral sepals for 2 mm, the lateral sepals connate into an ovoid synsepal, 13 mm long, 8 mm wide unexpanded, deeply concave below the middle, bialate externally, the apex acute, minutely bifid; **petals** translucent, narrowly linear, acute, 3.5 mm long, 0.3 mm wide; **lip** green with purple verrucae, trilobed, 7 mm long, 3 mm wide across the lobes, the middle lobe ovate, acute, the disc verrucose, the basal lobes erect, broadly rounded, the base narrowly unguiculate and acutely angled, attached to an elongated column-foot; **column** semiterete, 4 mm long, winged above the middle, denticulate at the apex, the foot 3 mm long with the tip free, the anther, rostellum and stigma ventral.

PANAMA: **Chiriquí**: Llanos del Volcán, alt. ca. 1300 m, 23 Jan. 1939, *P.H. Allen 1552* (Holotype: AMES); on trees overhanging Río Macho Monte below Volcán, alt. ca. 1200 m, 14 Sept. 1976, cultivated 29 Oct. 1976, *C. Luer & H. Butcher 1263* (SEL).
COSTA RICA: **Puntarenas**: Coto Brus, along Río Jaba from Wilson Botanical Garden, alt. 1000-1100 m, 22 Jan. 1989, *M. Grayum & T. Gruner 9269* (CR, MO).

This uncommon species from eastern Costa Rica and adjacent Panama usually grows along streams, most often on boughs overhanging water. The leaves hang in overlapping clusters with the racemes hidden between. The original collection was mounted as if erect, so the pendent habit was unknown.

Vegetatively, this species is attractive with the perpendicular-pendent, purple-veined, sharp-edged, overlapping leaves. The raceme hangs down for about half the length; the flowers are colorfully striped; the petals are glabrous and narrowly linear; and the claw of the three-lobed lip articulates with an elongated column-foot.

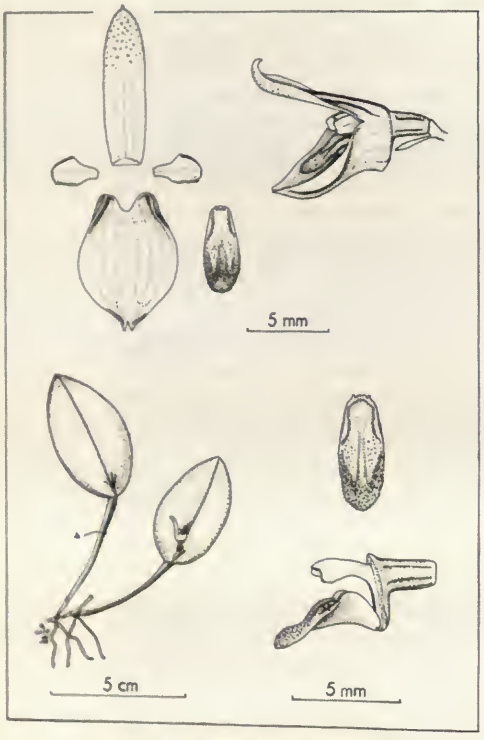


Fig. 1. Pleurothallis aculeata

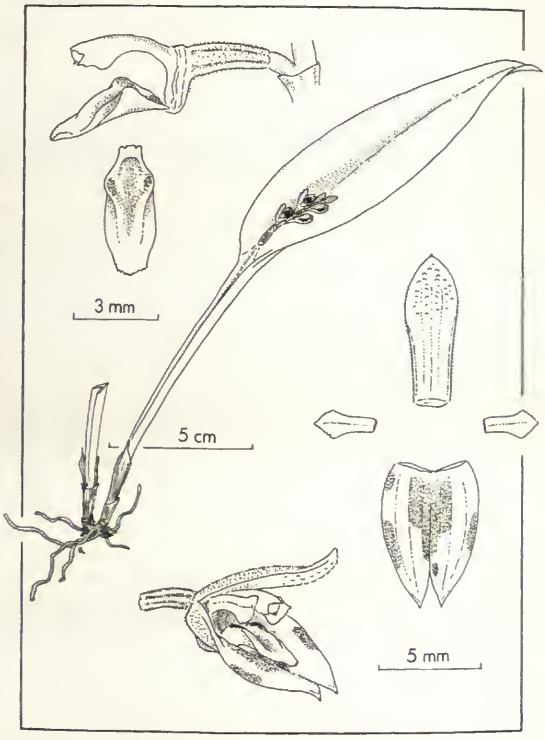


Fig. 2. Pleurothallis aechme

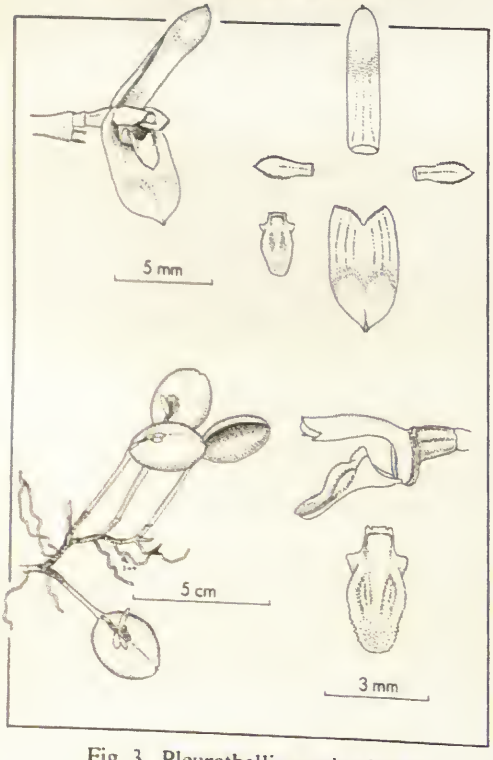


Fig. 3. Pleurothallis agathophylla

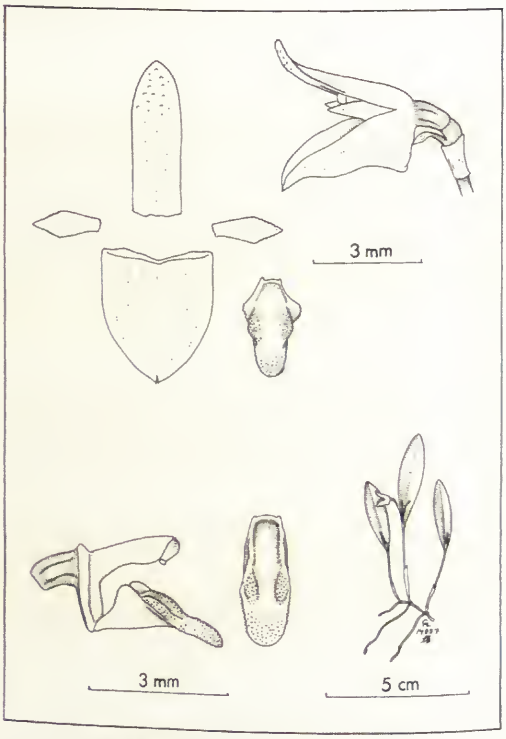


Fig. 4. Pleurothallis angustifolia

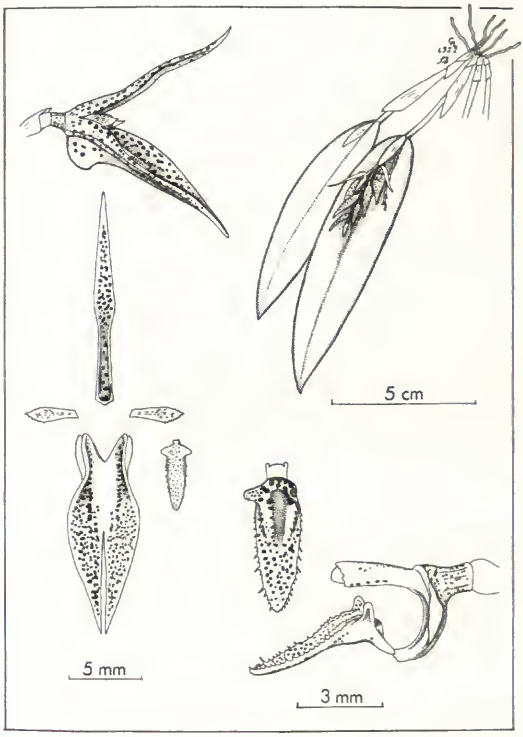


Fig. 5. Pleurothallis angustisepala

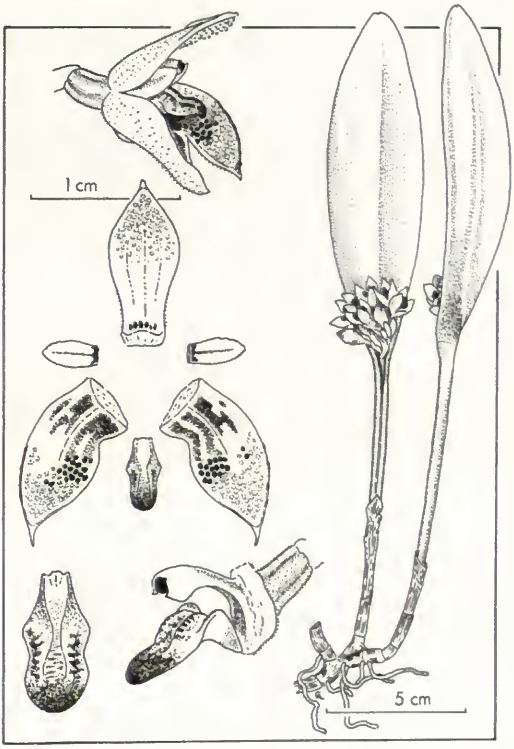


Fig. 6. Pleurothallis aphthosa

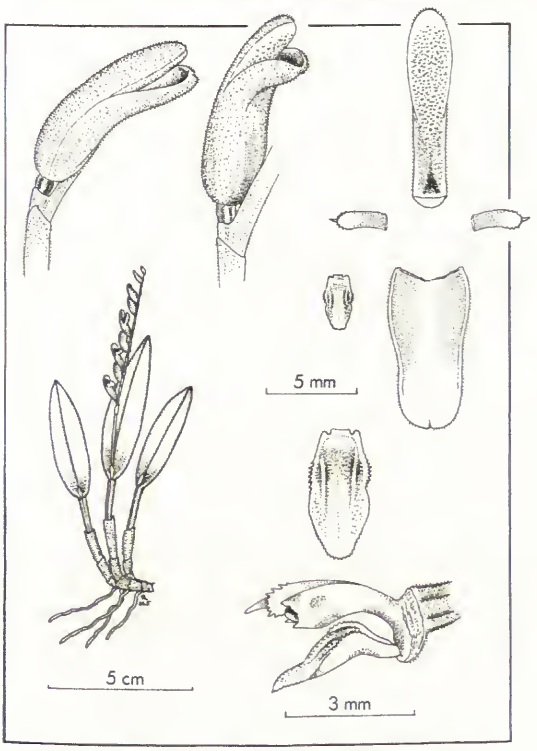


Fig. 7. Pleurothallis aurantio-lateritia

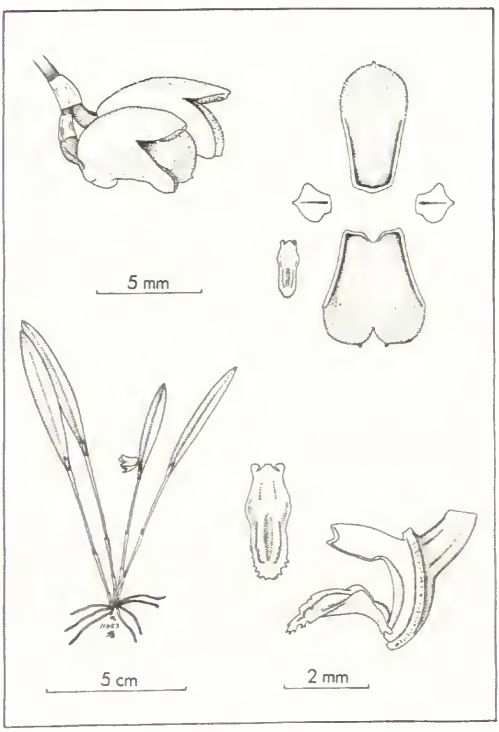


Fig. 8. Pleurothallis biceps

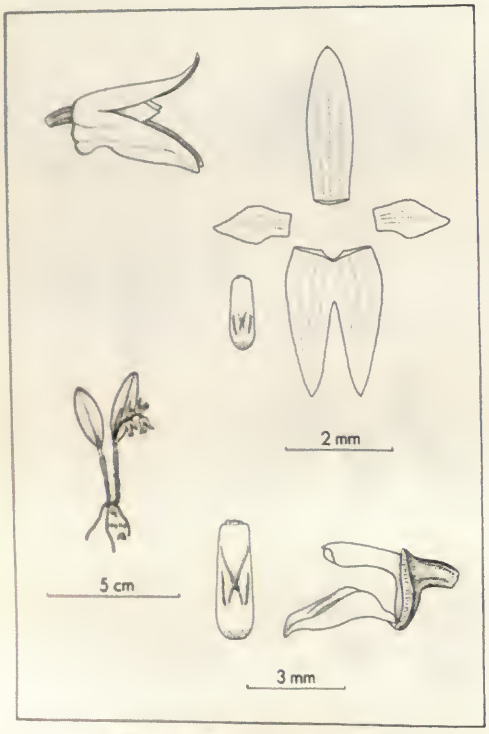


Fig. 9. Pleurothallis bissei

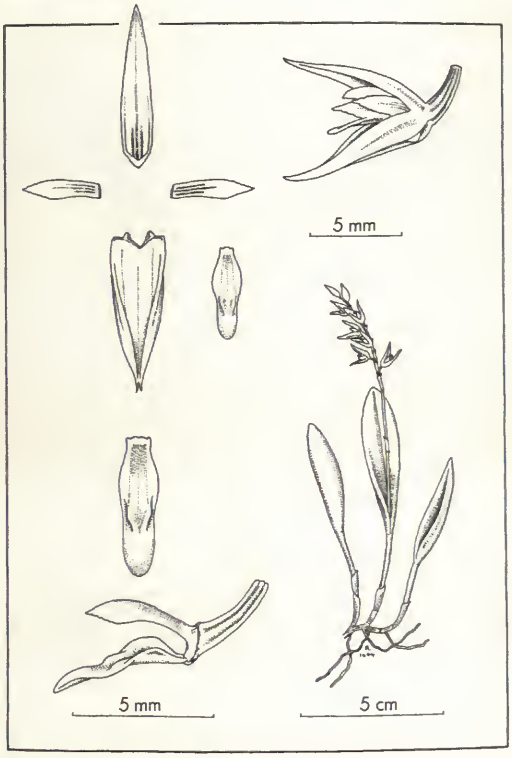


Fig. 10. Pleurothallis boliviana

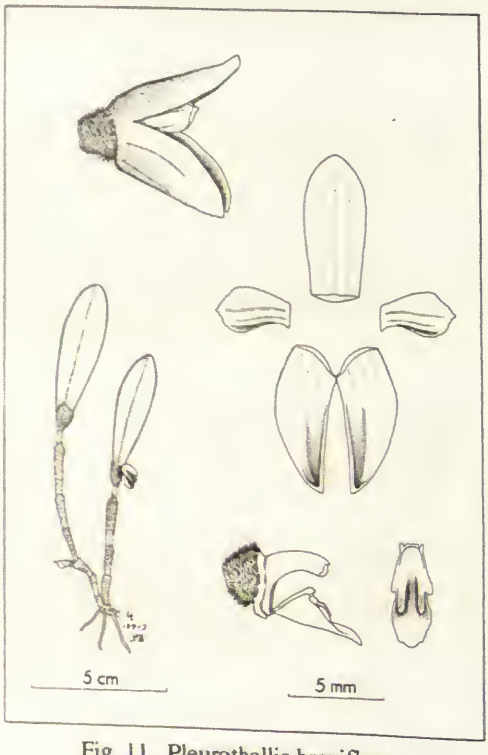


Fig. 11. Pleurothallis breviflora

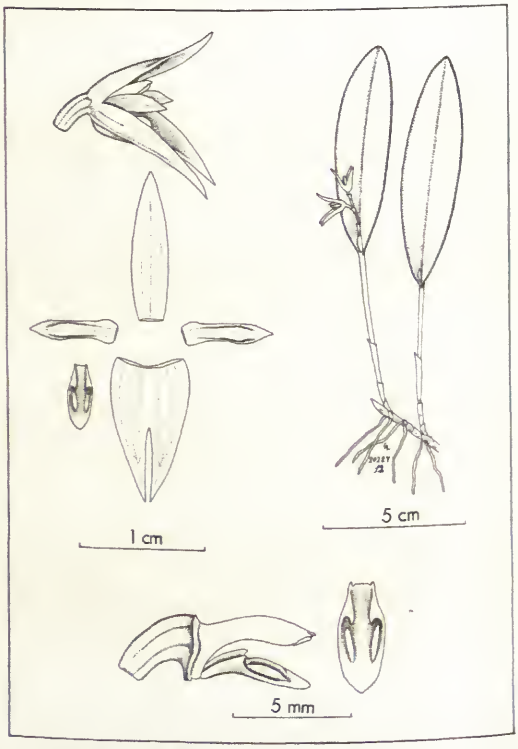


Fig. 12. Pleurothallis carinata

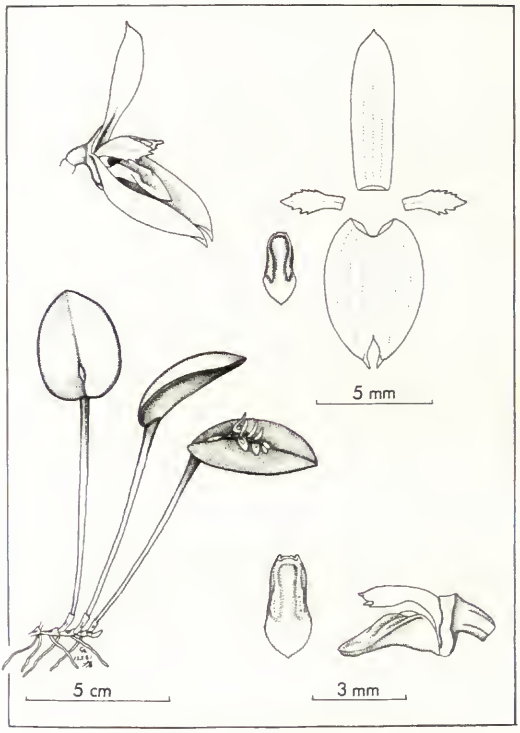


Fig. 13. Pleurothallis casapensis

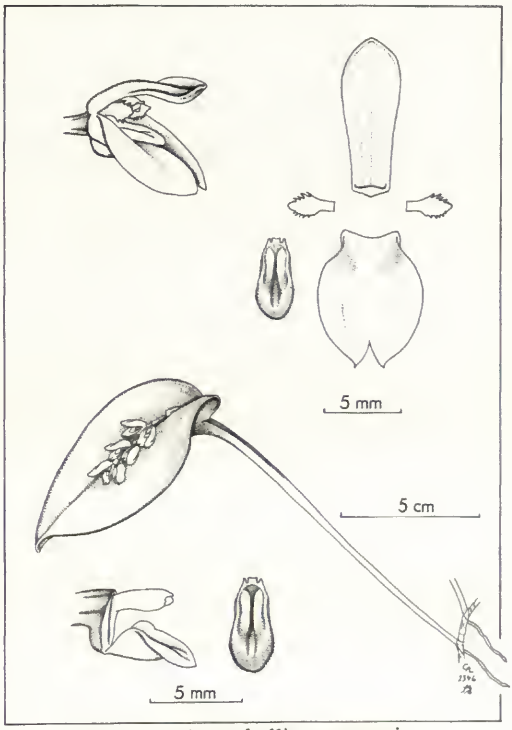


Fig. 14. Pleurothallis casapensis (P. chamensis)

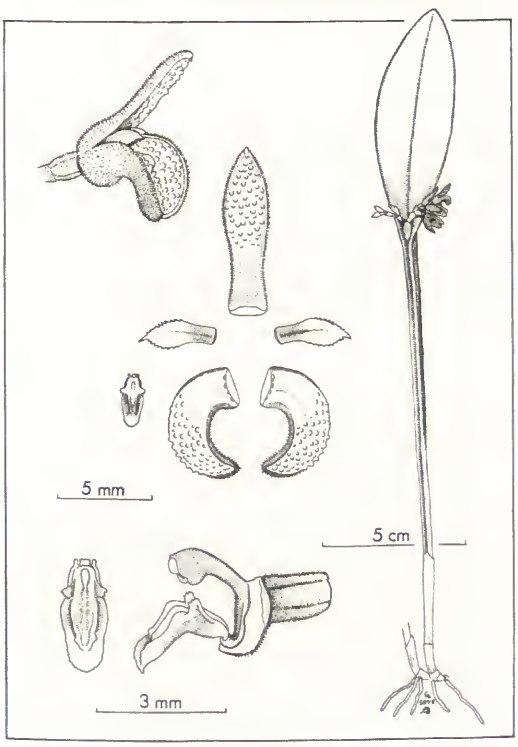


Fig. 15. Pleurothallis cerberus

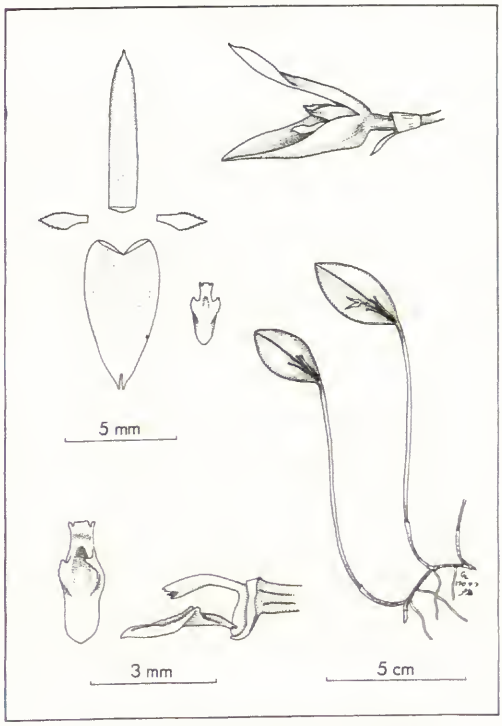


Fig. 16. Pleurothallis chamelopoda

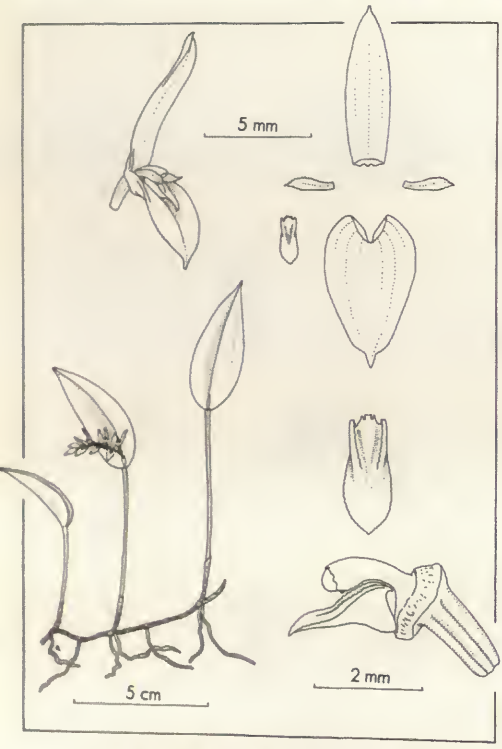


Fig. 17. Pleurothallis chionopa

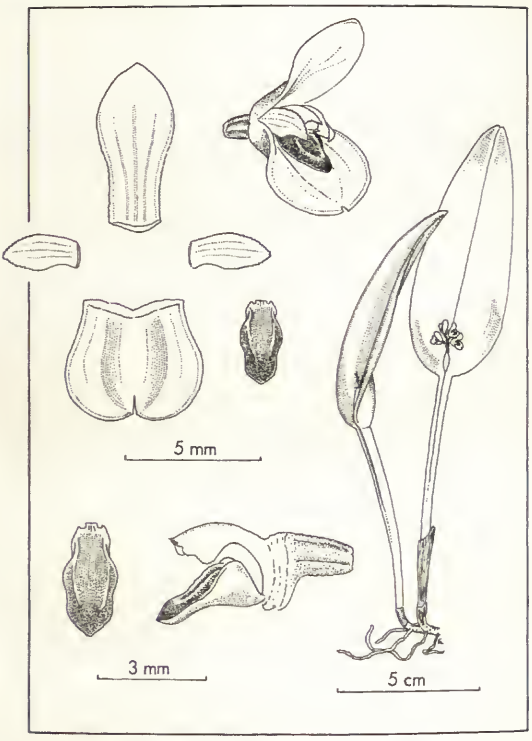


Fig. 18. Pleurothallis chrysantha

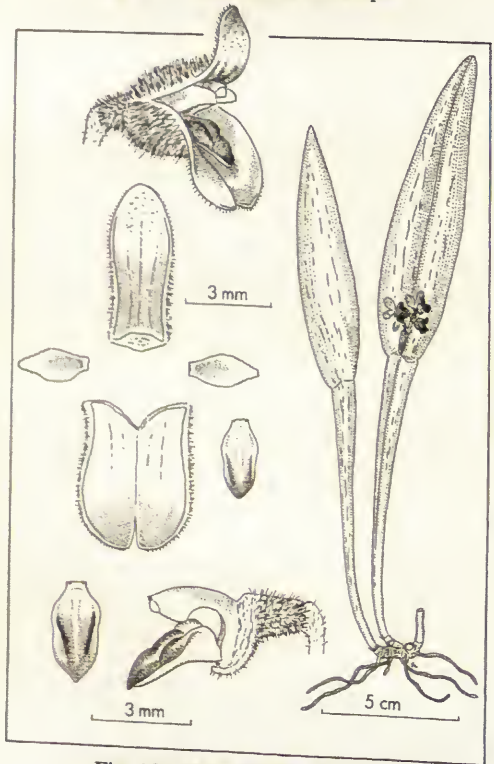


Fig. 19. Pleurothallis chrysantha
(P. hartwegiaefolia)

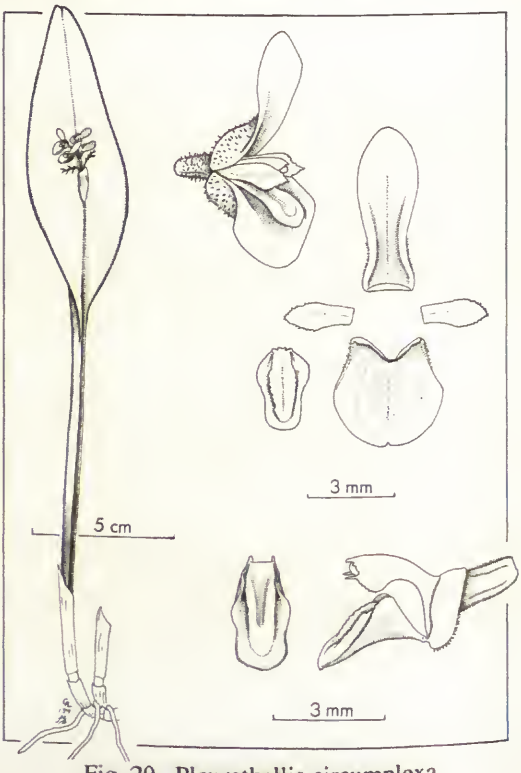


Fig. 20. Pleurothallis circumplexa

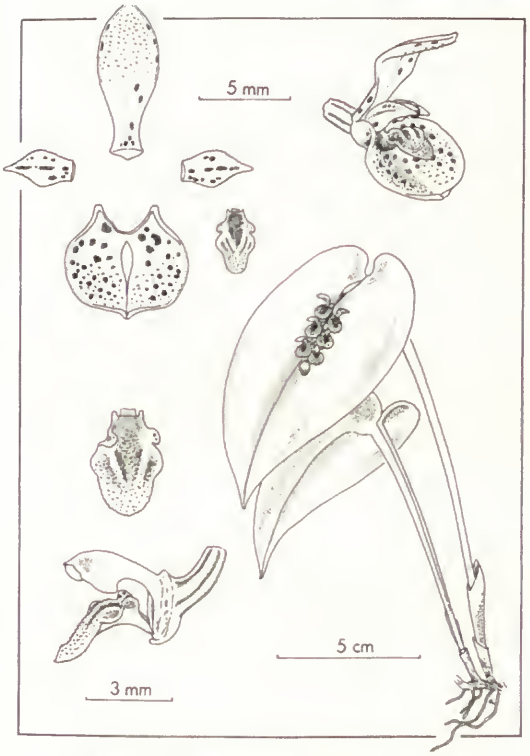


Fig. 21. Pleurothallis cogniauxiana

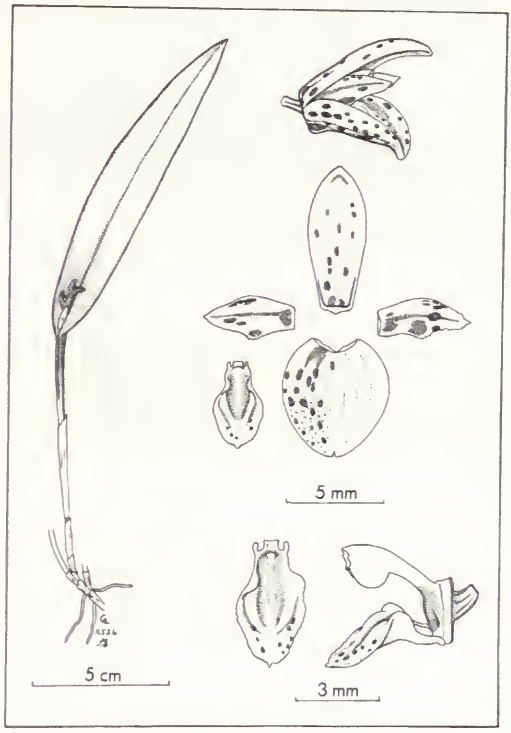


Fig. 22. Pleurothallis cogniauxiana

Fig. 23. Pleurothallis compressicaulis

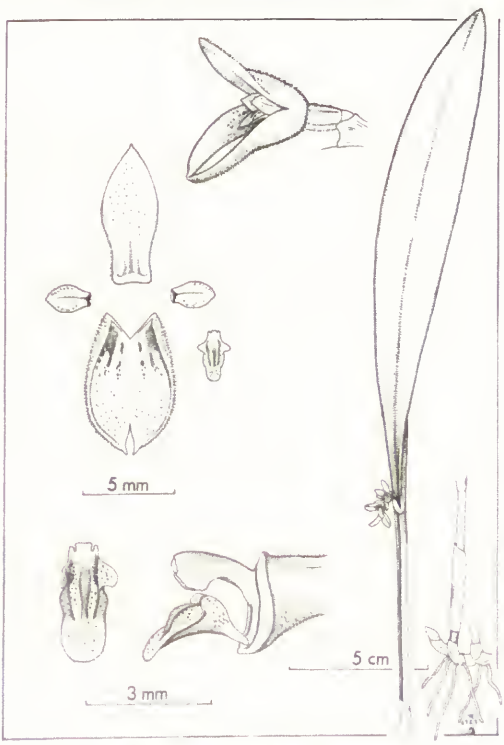


Fig. 24. Pleurothallis consatae

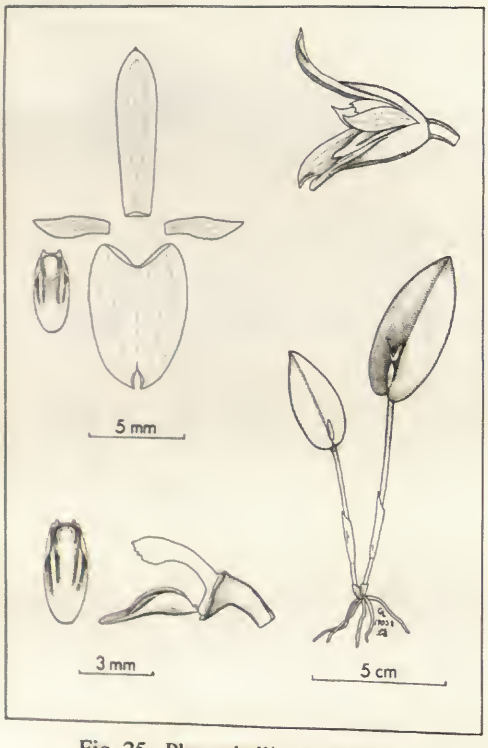


Fig. 25. Pleurothallis cordatifolia

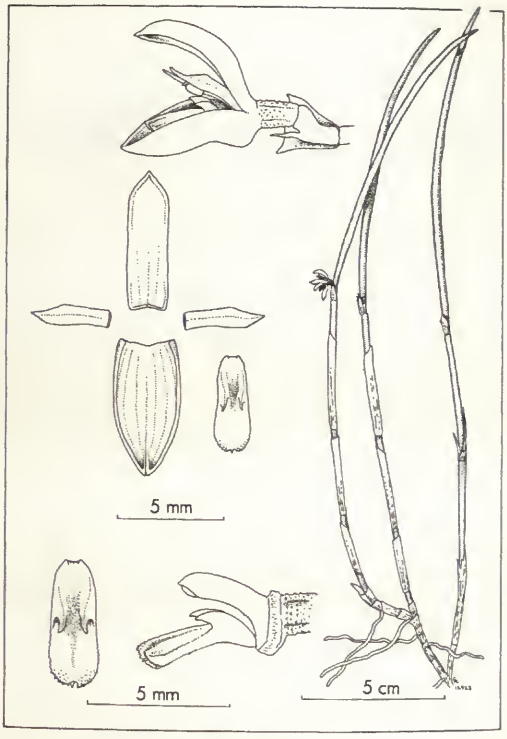


Fig. 26. Pleurothallis costabilis

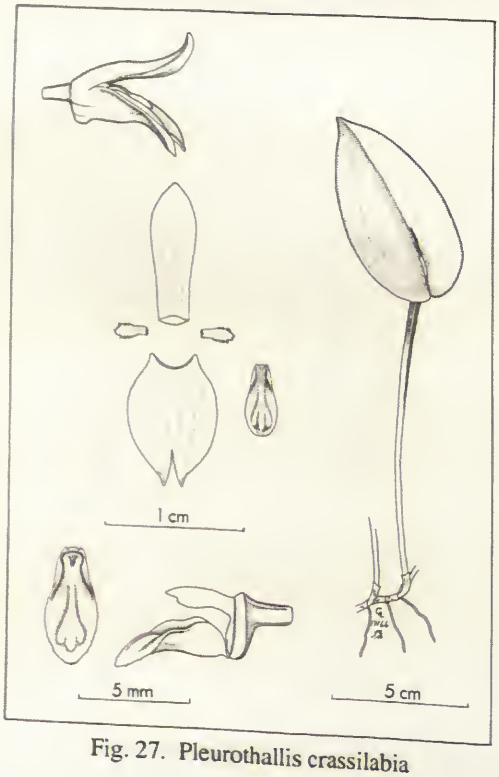


Fig. 27. Pleurothallis crassilabia

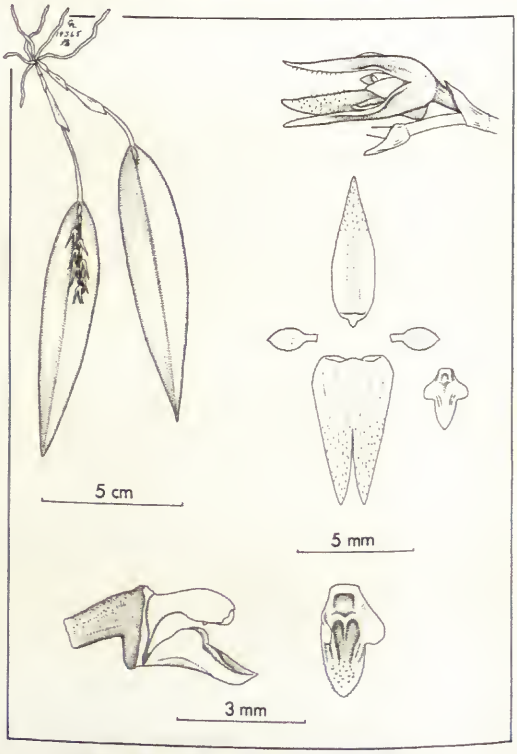


Fig. 28. Pleurothallis cremasta

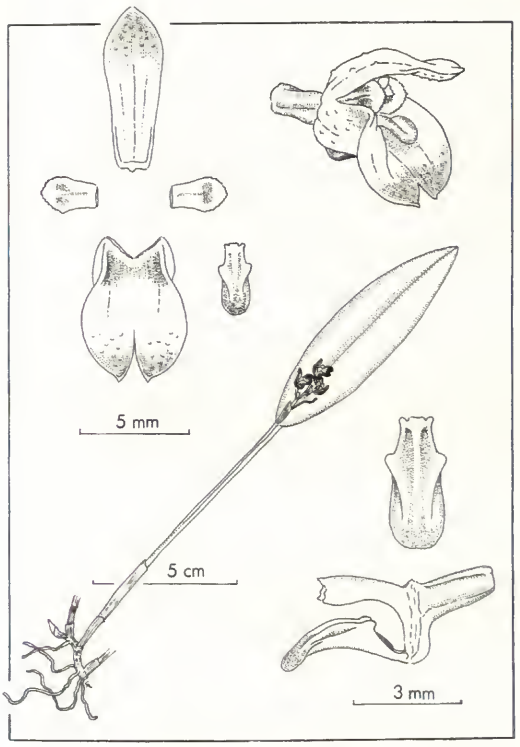


Fig. 29. Pleurothallis decipiens

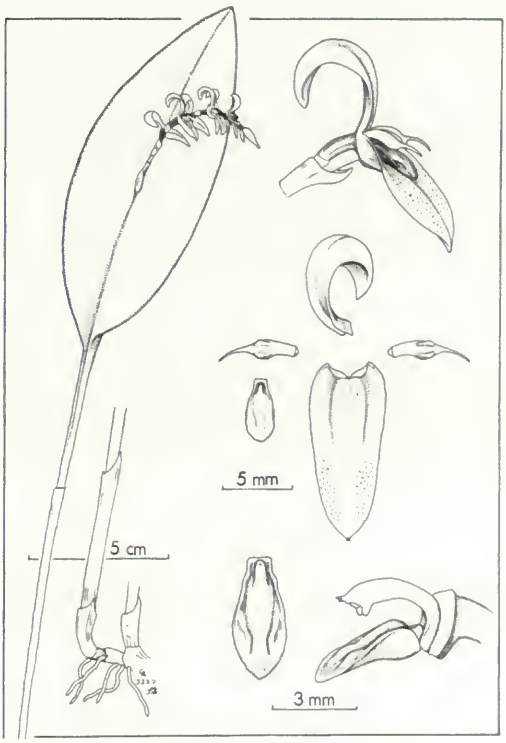


Fig. 30. Pleurothallis decurrens

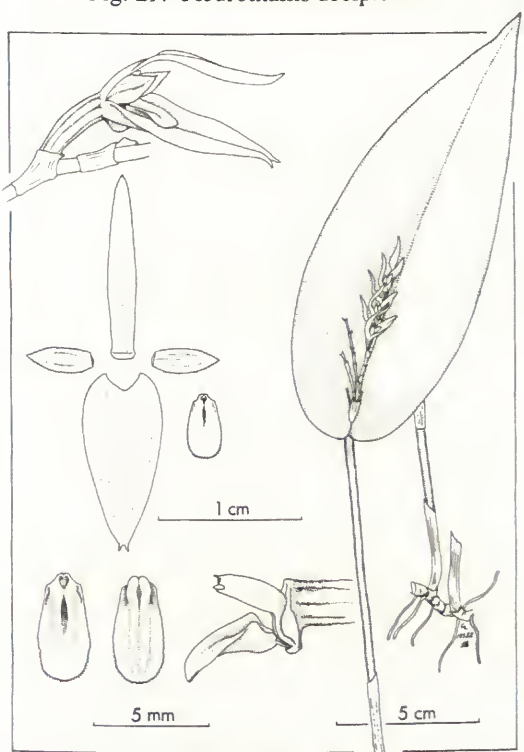


Fig. 31. Pleurothallis deserta

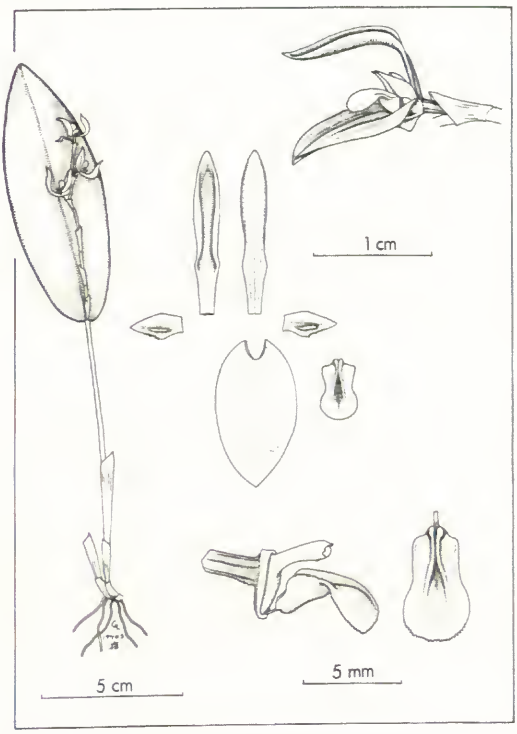


Fig. 32. Pleurothallis deserta

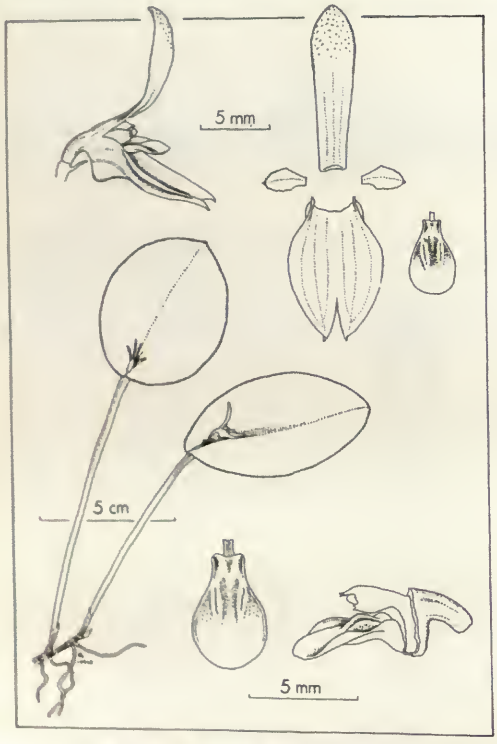


Fig. 33. Pleurothallis discophylla

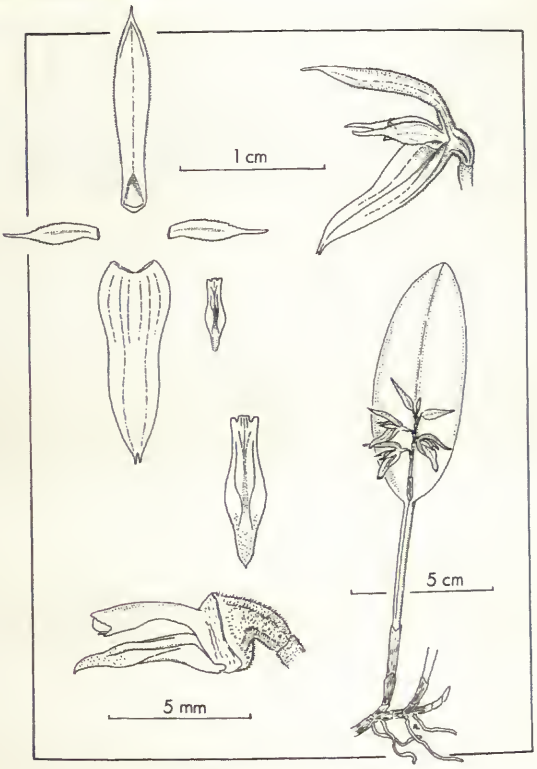


Fig. 34. Pleurothallis ellipsophylla

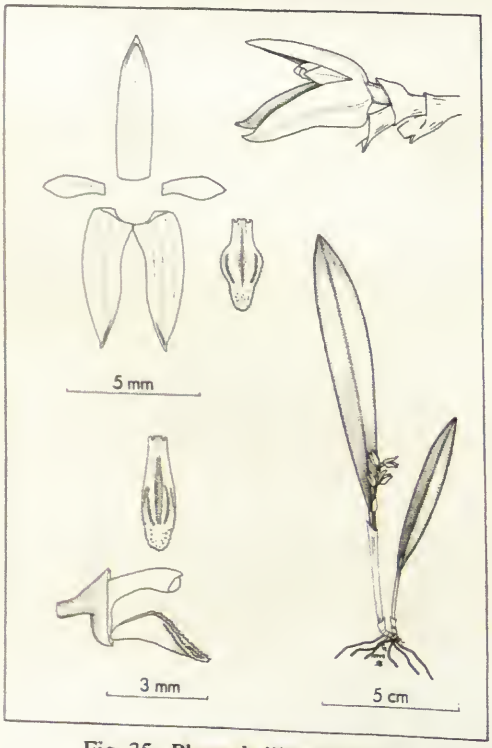


Fig. 35. Pleurothallis erebatensis

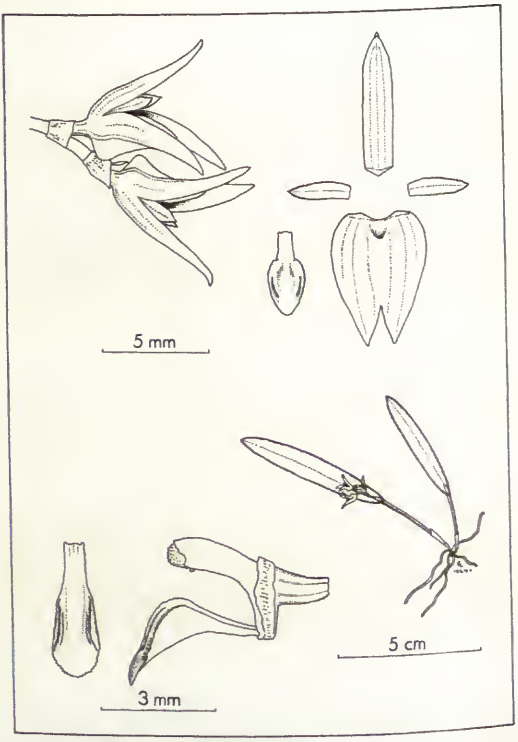


Fig. 36. Pleurothallis erebatensis
(P. barthelemyi)

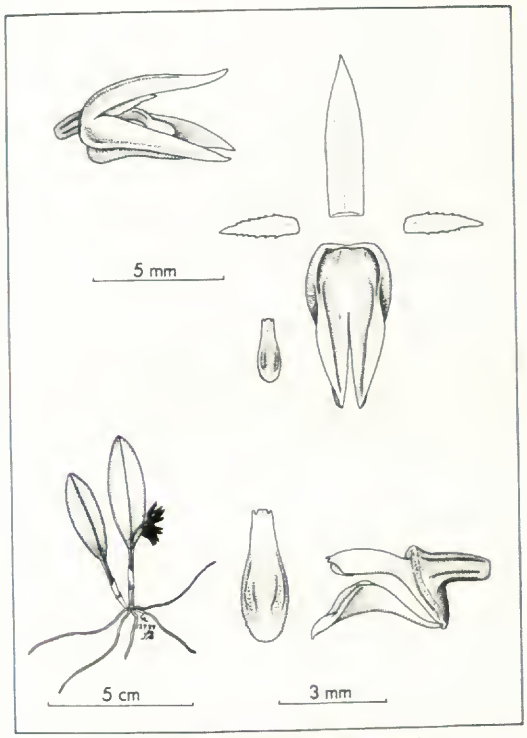


Fig. 37. Pleurothallis erebatensis
(P. purpurascens)

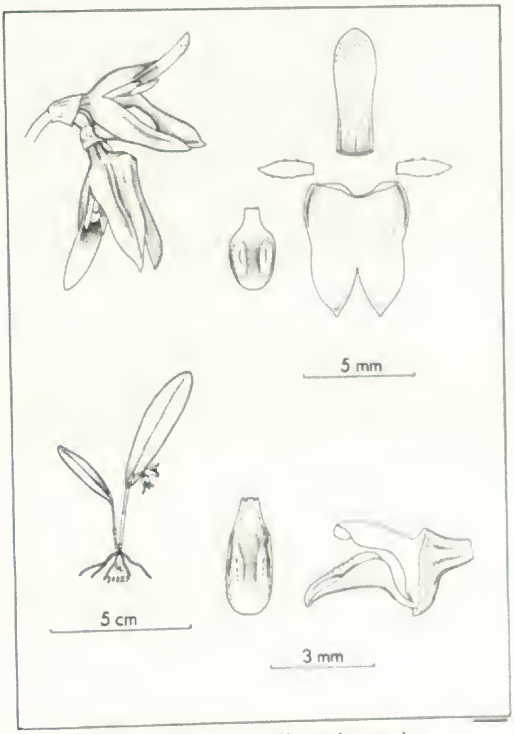


Fig. 38. Pleurothallis erebatensis
(P. nanella)

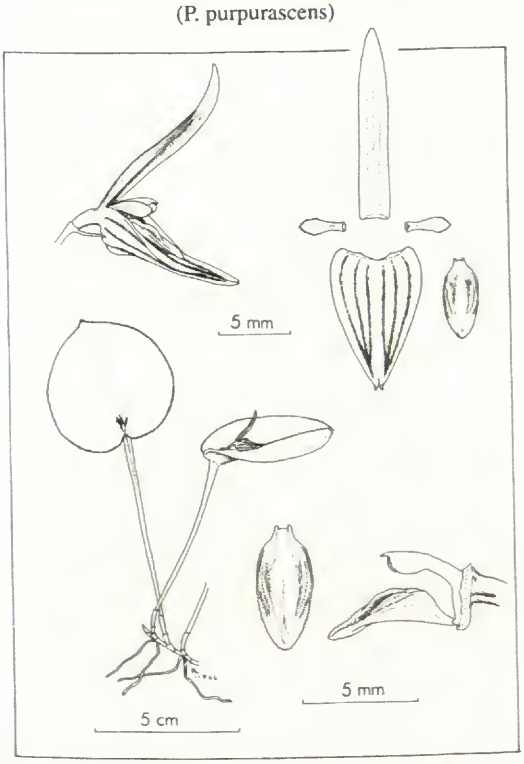


Fig. 39. Pleurothallis erythrogramma

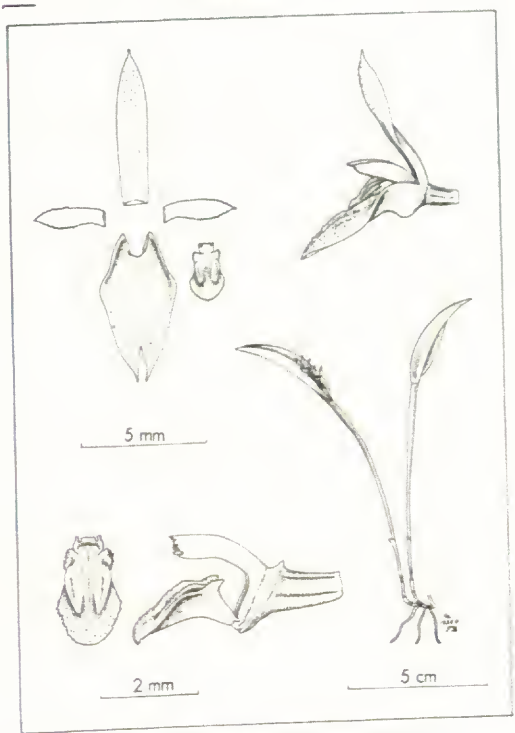


Fig. 40. Pleurothallis esmeraldae

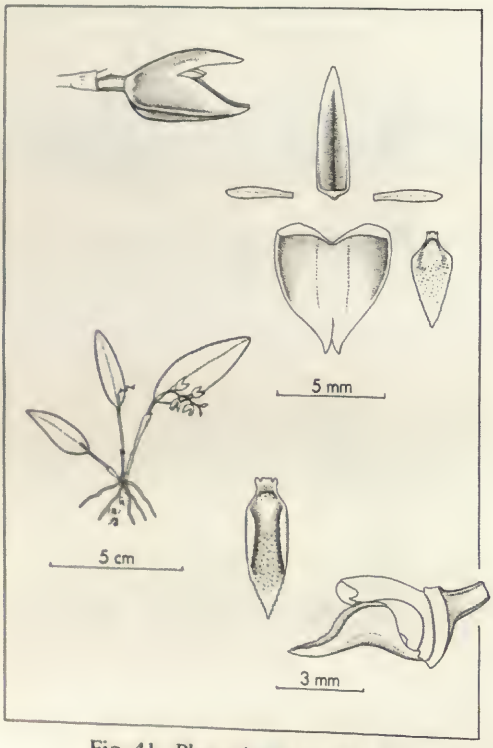


Fig. 41. Pleurothallis eximia

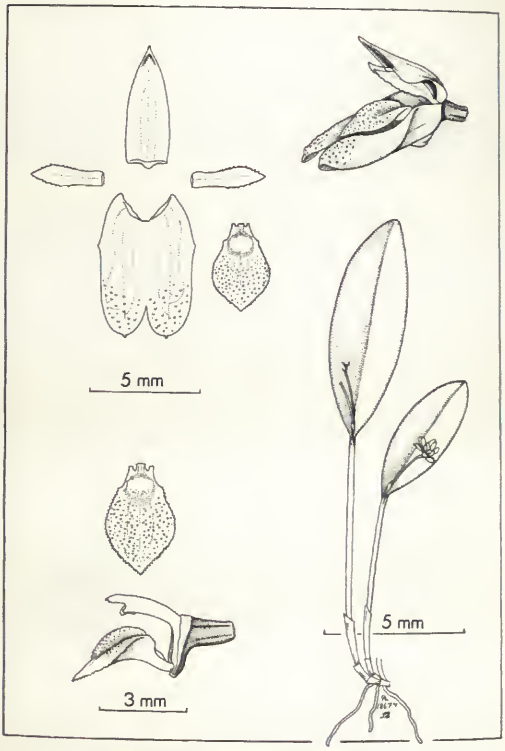


Fig. 42. Pleurothallis fockei

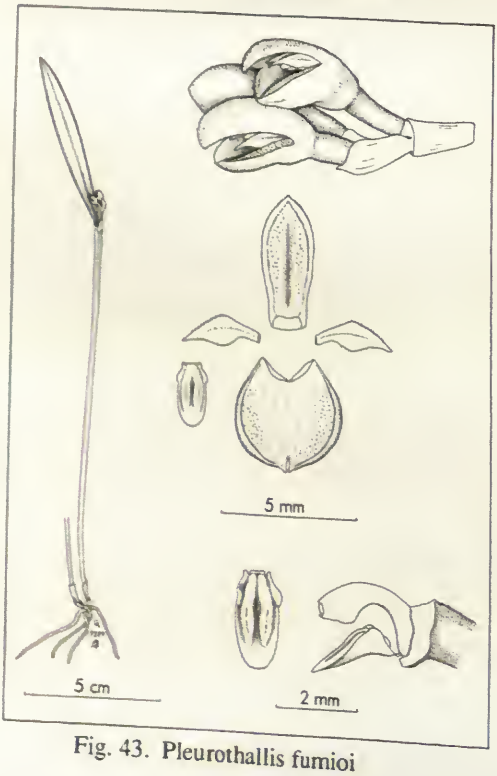


Fig. 43. Pleurothallis fumioi

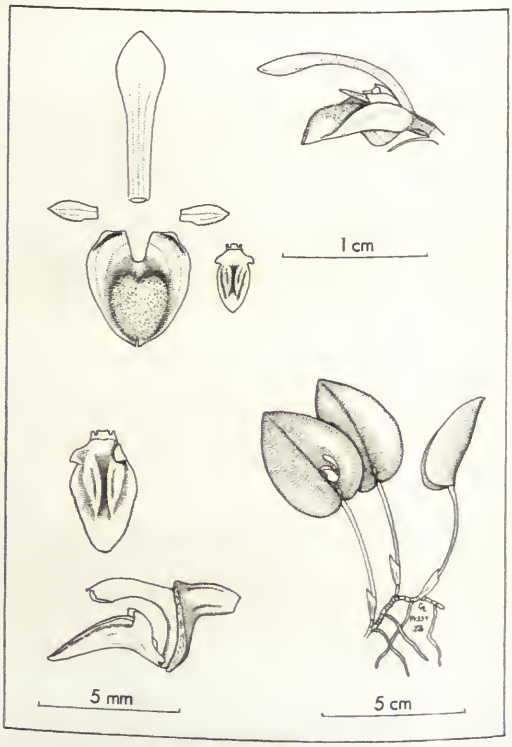


Fig. 44. Pleurothallis garciae

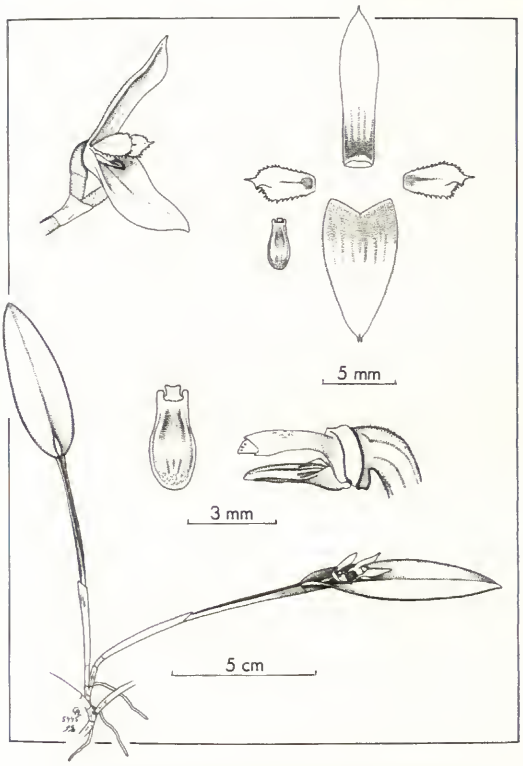


Fig. 45. Pleurothallis geminicaulina

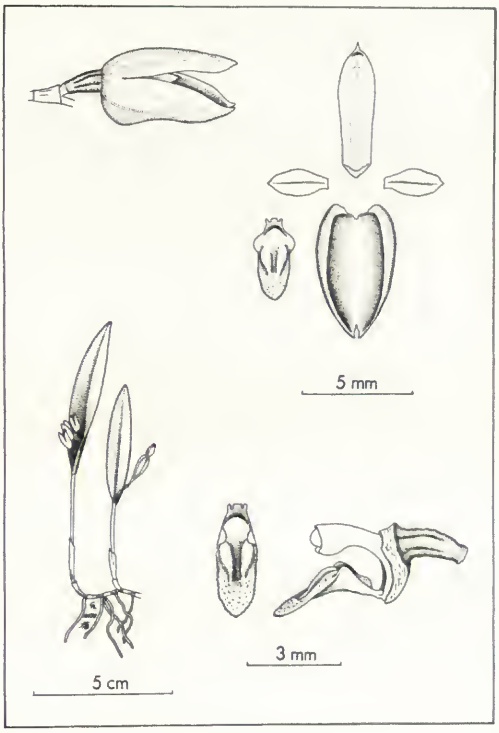


Fig. 46. Pleurothallis granitica

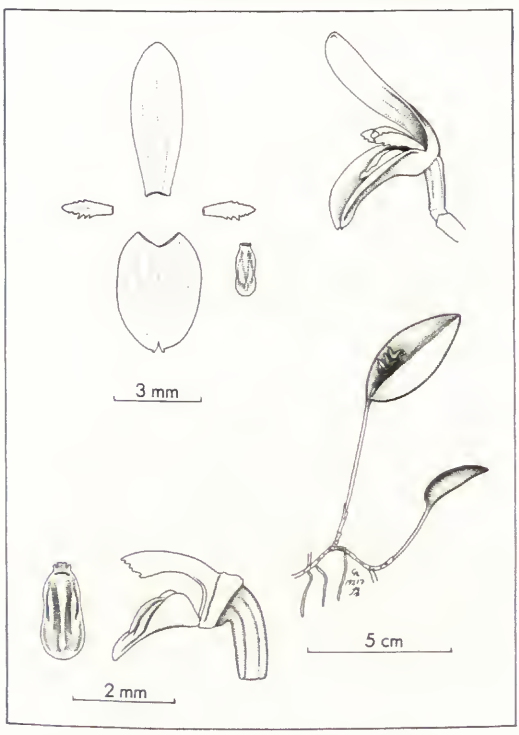


Fig. 47. Pleurothallis harpophylla

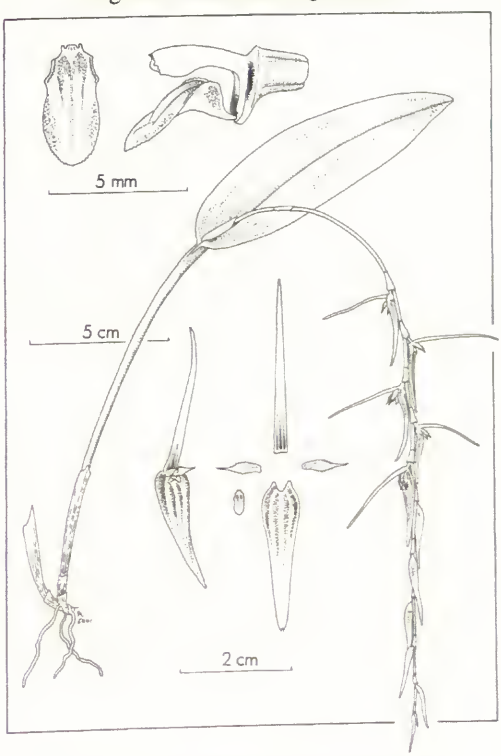


Fig. 48. Pleurothallis heliconioides

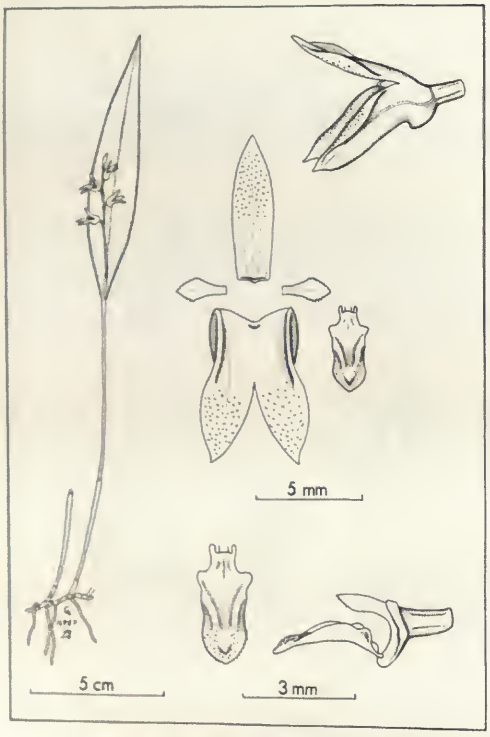


Fig. 49. Pleurothallis henrici

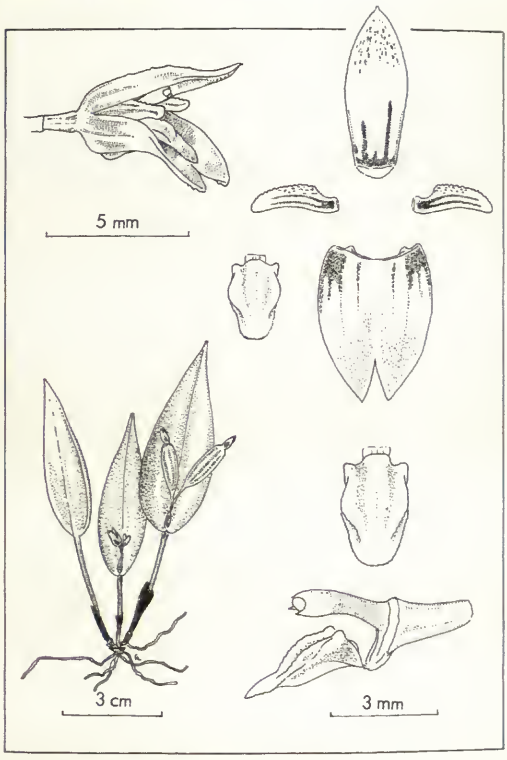


Fig. 50. Pleurothallis heteropetala

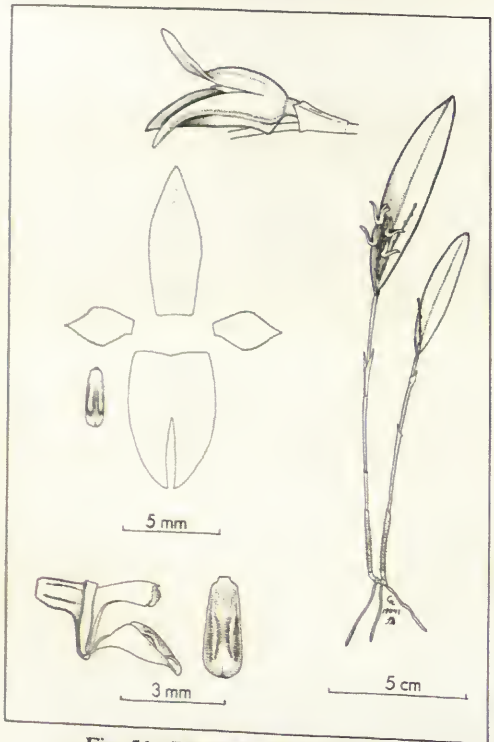


Fig. 51. Pleurothallis hirsutula

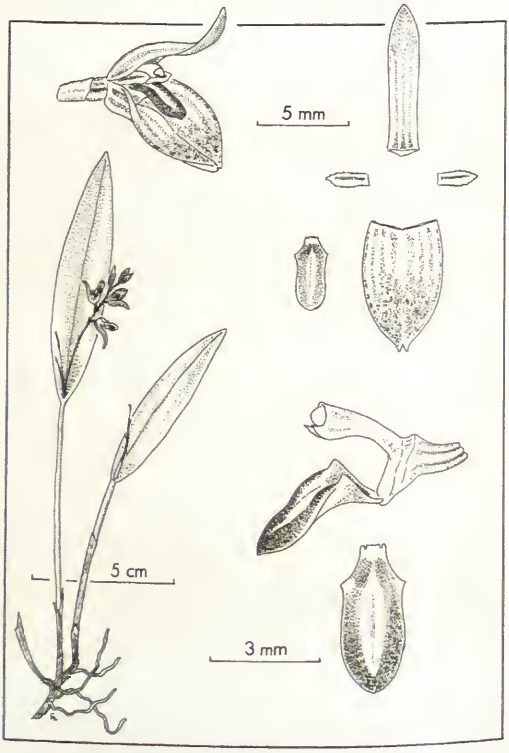


Fig. 52. Pleurothallis hondurensis

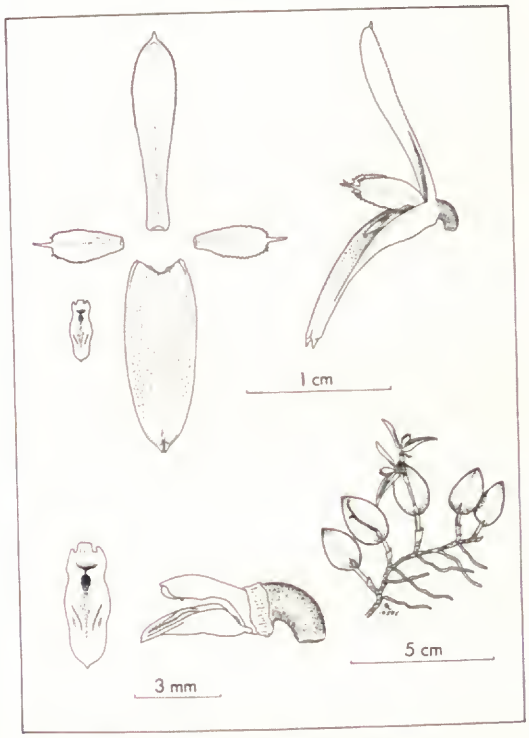


Fig. 53. Pleurothallis juxtaposita

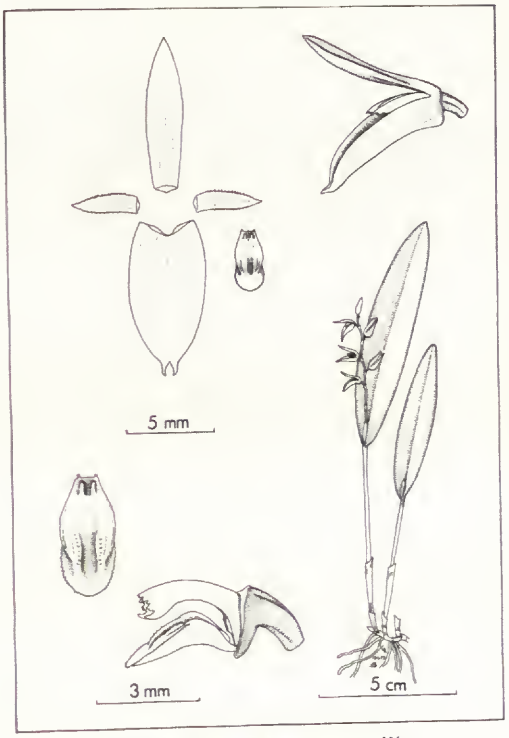


Fig. 54. Pleurothallis kegelii

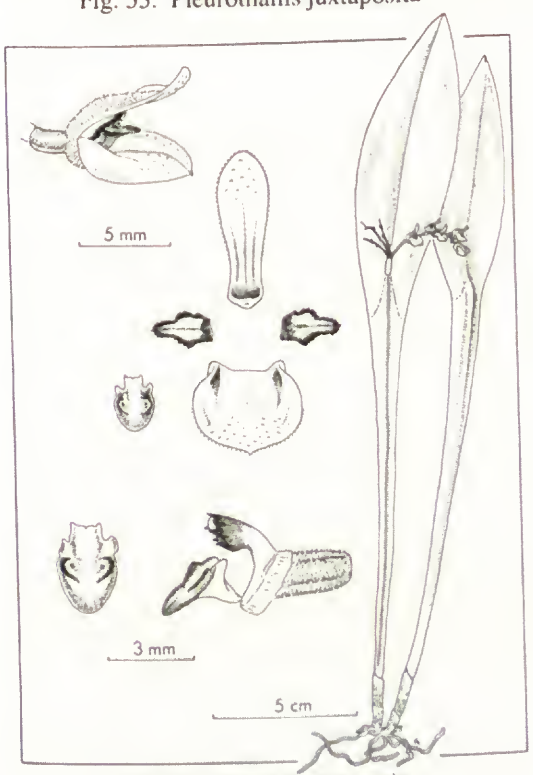


Fig. 55. Pleurothallis lamia

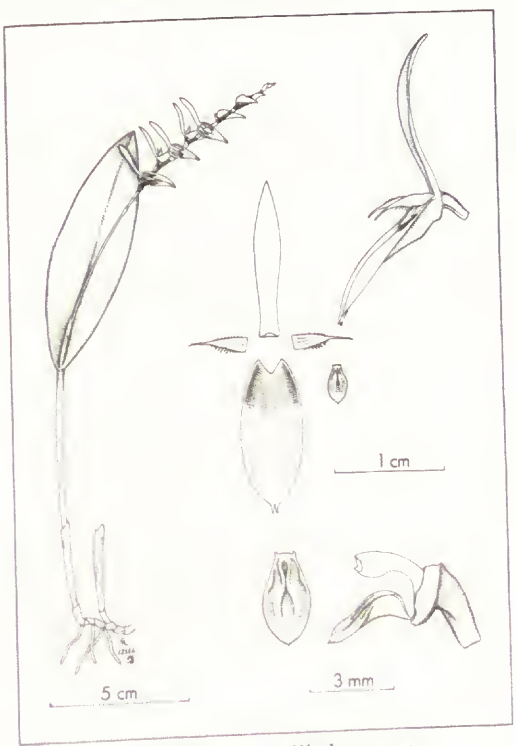


Fig. 56. Pleurothallis lanceana

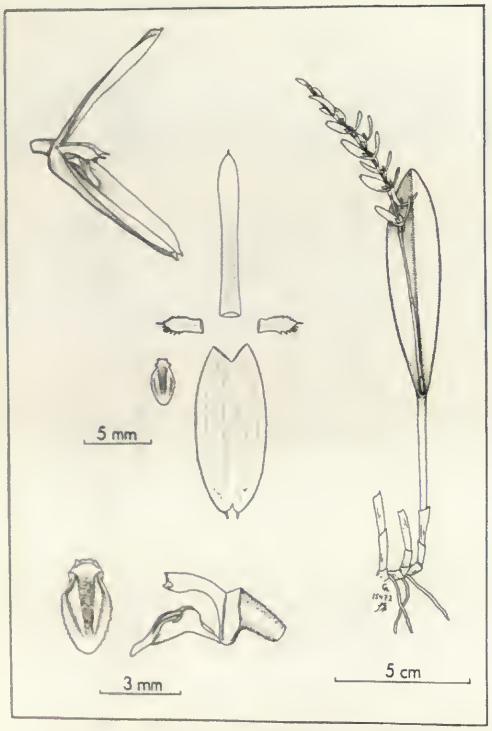


Fig. 57. Pleurothallis lanceana
(P. ciliata)

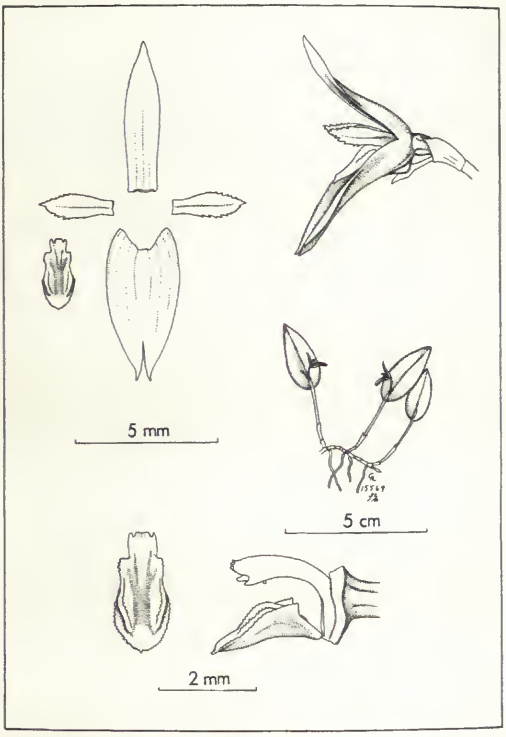


Fig. 58. Pleurothallis litensis

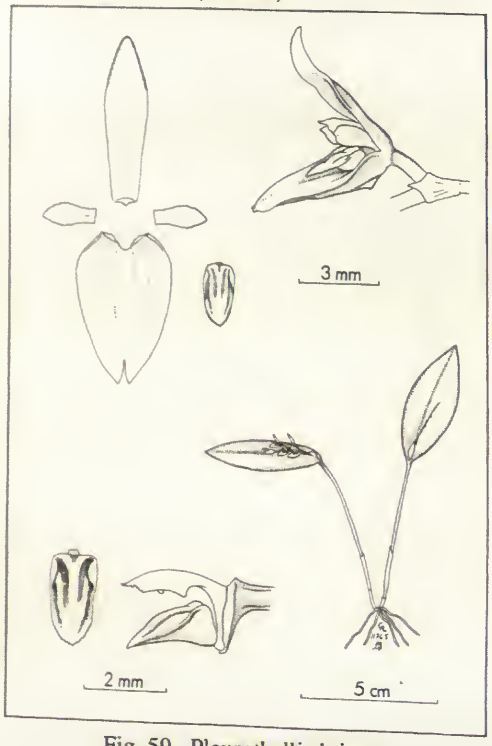


Fig. 59. Pleurothallis lojae

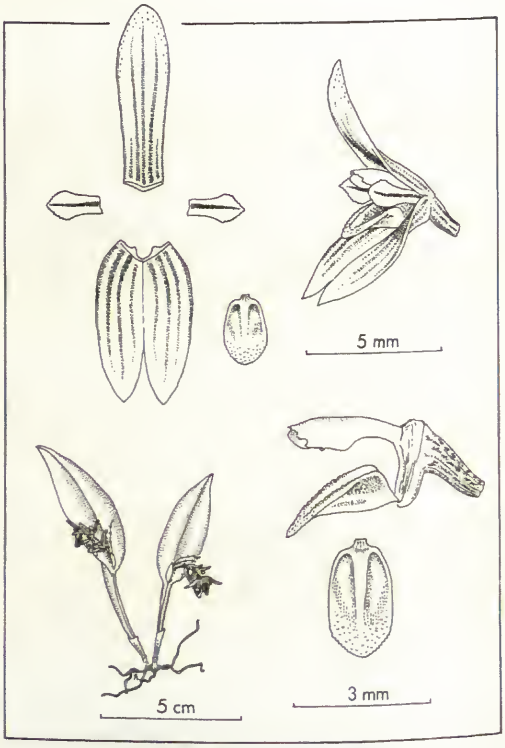


Fig. 60. Pleurothallis lojae
(P. florosa)

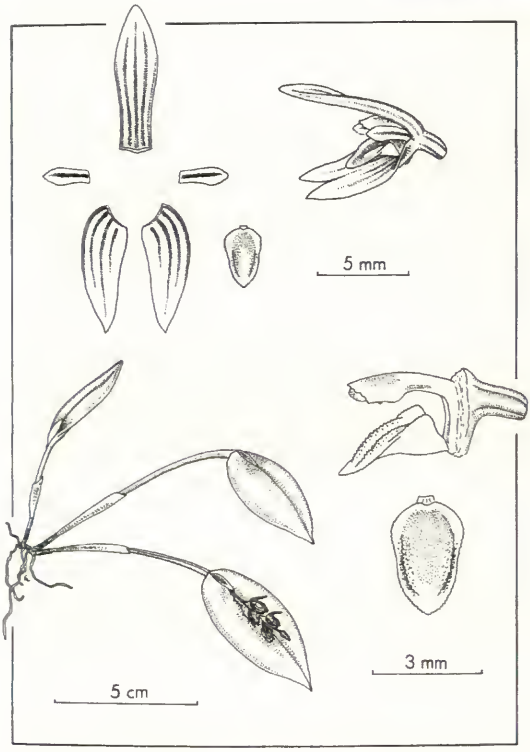


Fig. 61. Pleurothallis lojae
(P. citrophila)

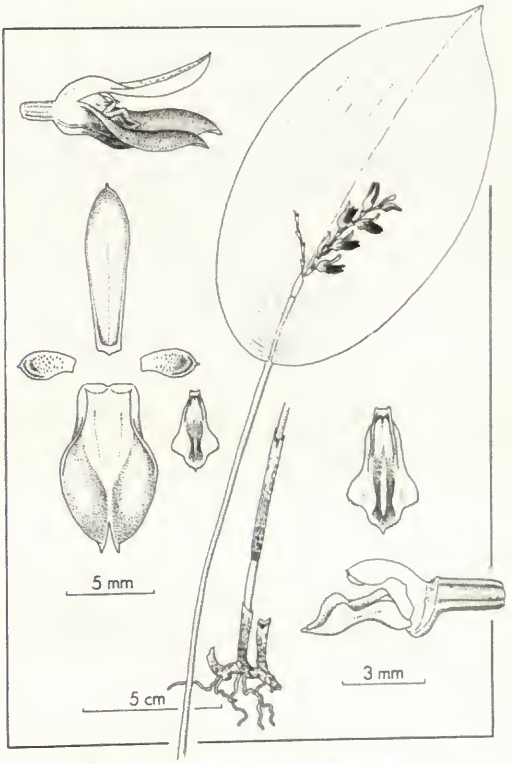


Fig. 62. Pleurothallis madisonii

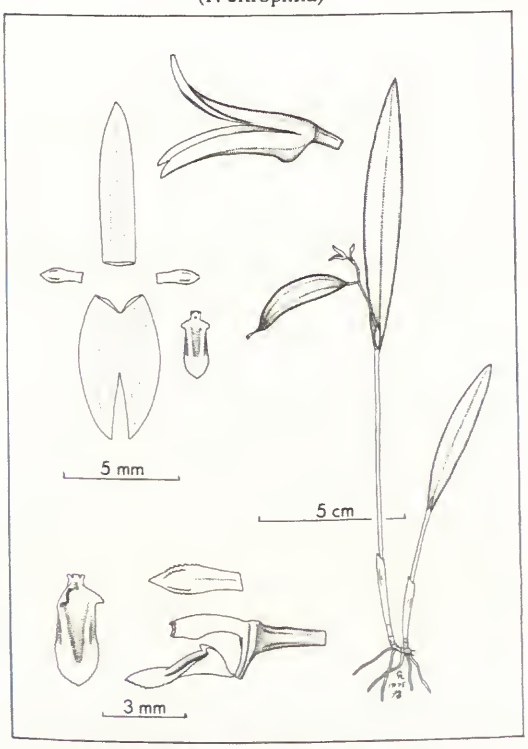


Fig. 63. Pleurothallis martinezii

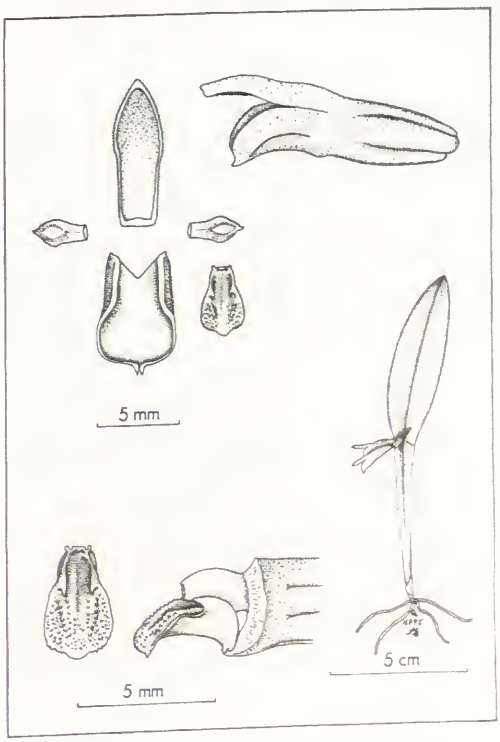


Fig. 64. Pleurothallis melanoglossa

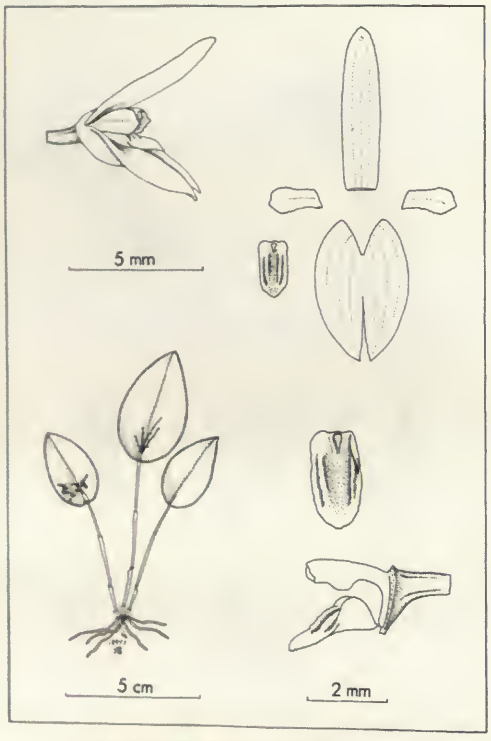


Fig. 65. Pleurothallis mexiae

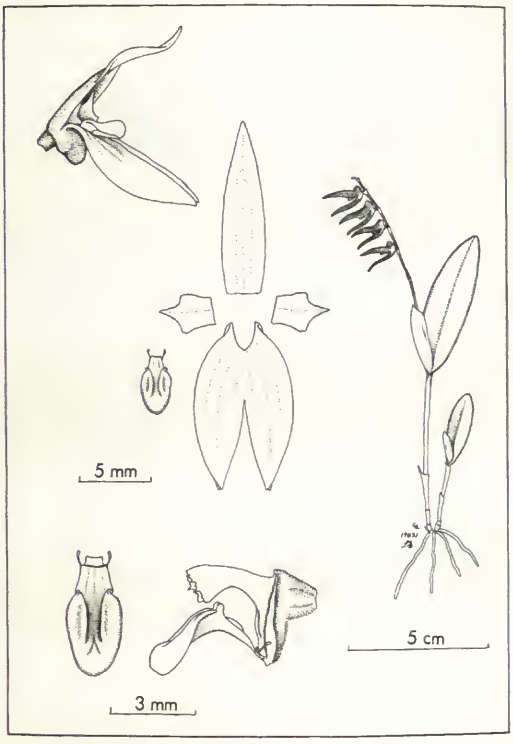


Fig. 66. Pleurothallis miguelii

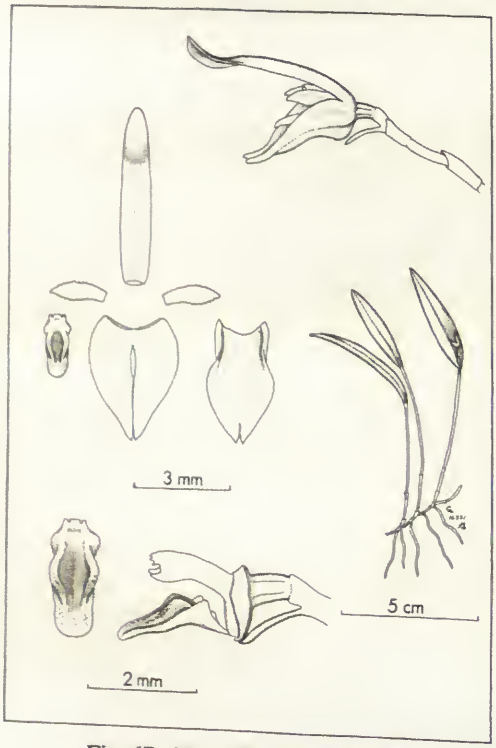


Fig. 67. Pleurothallis miqueliana

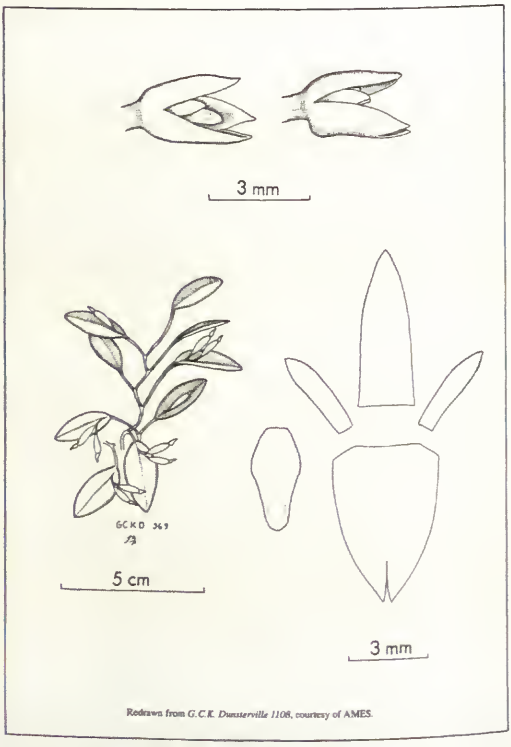


Fig. 68. Pleurothallis morilloi

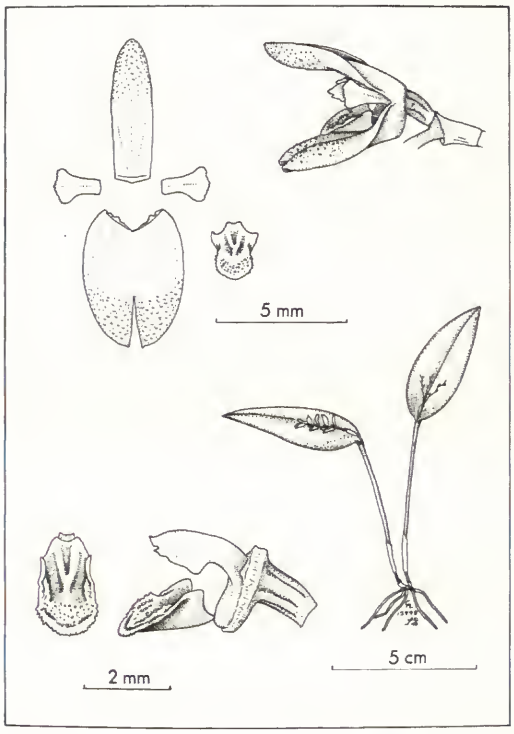


Fig. 69. Pleurothallis moronae

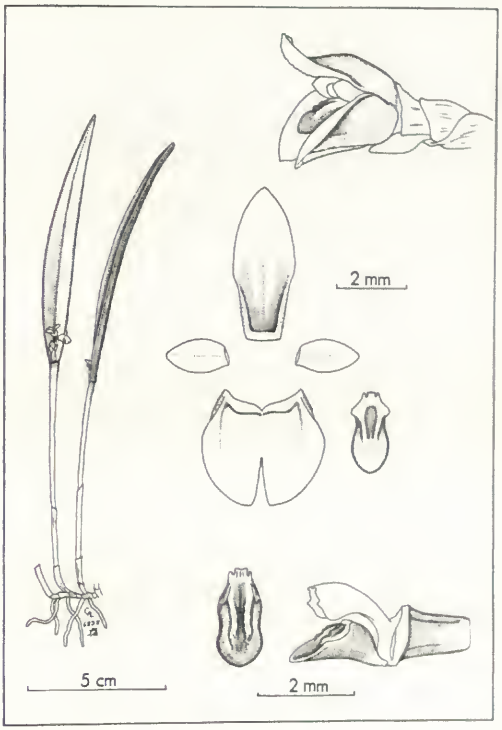


Fig. 70. Pleurothallis obscura

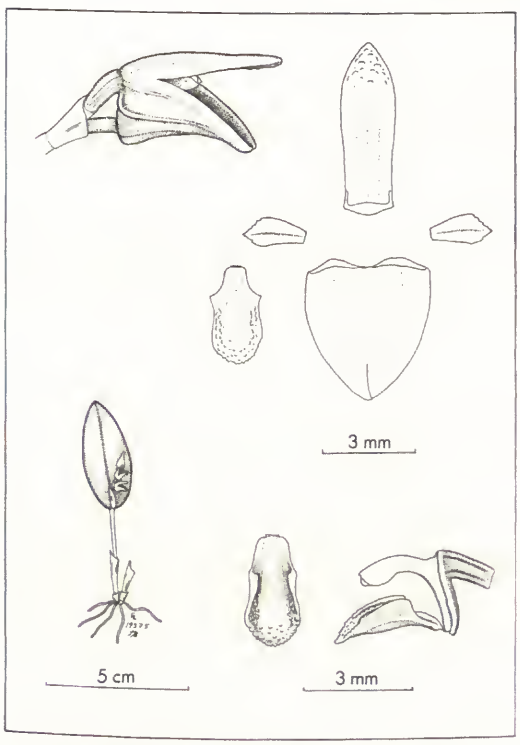


Fig. 71. Pleurothallis odontotepala

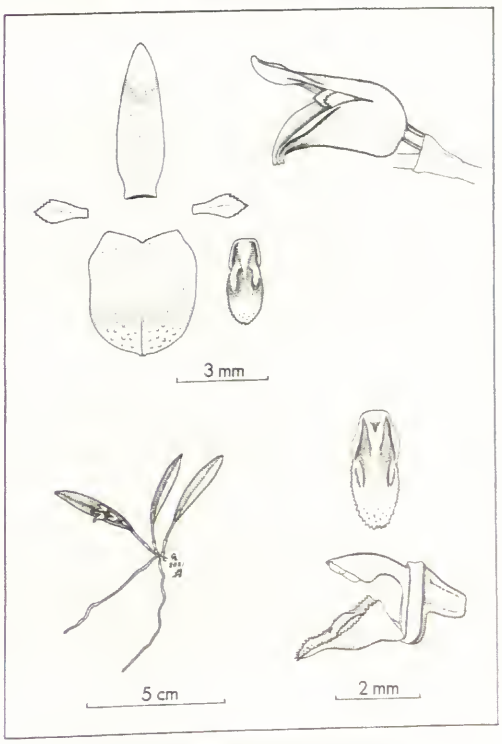
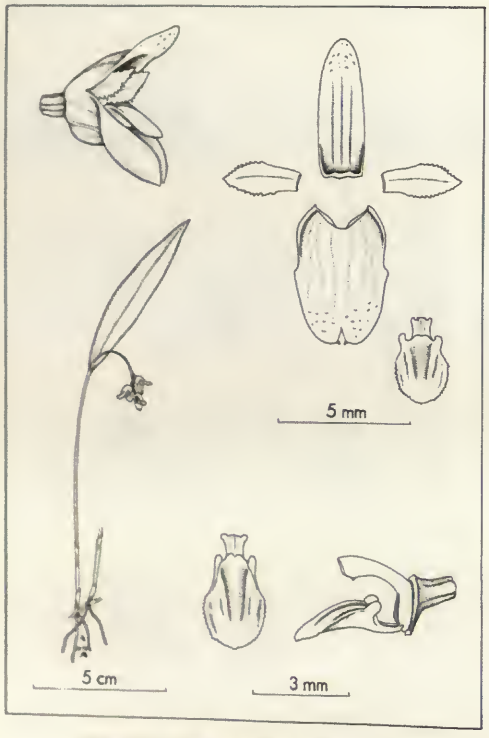


Fig. 72. Pleurothallis ofella



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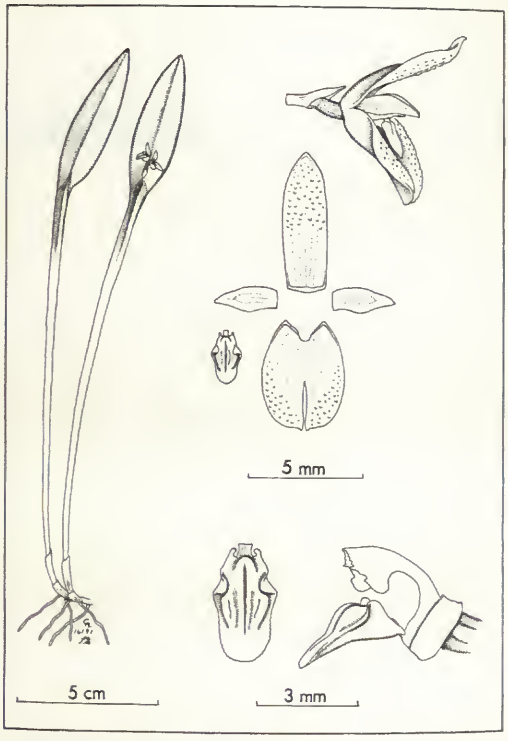

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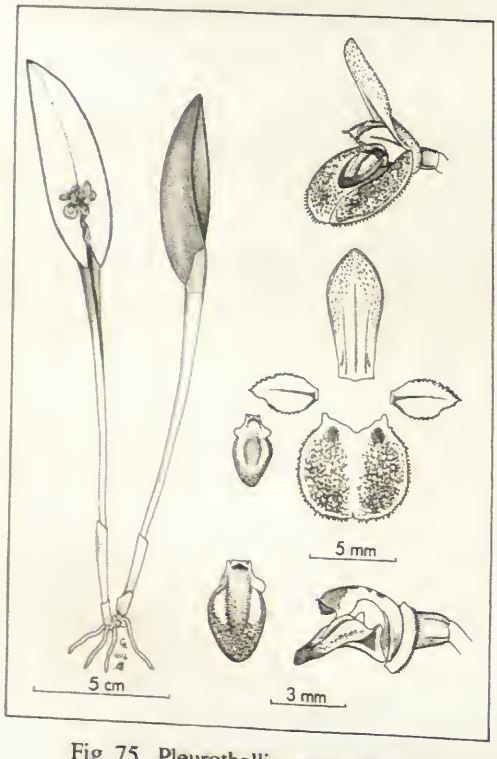

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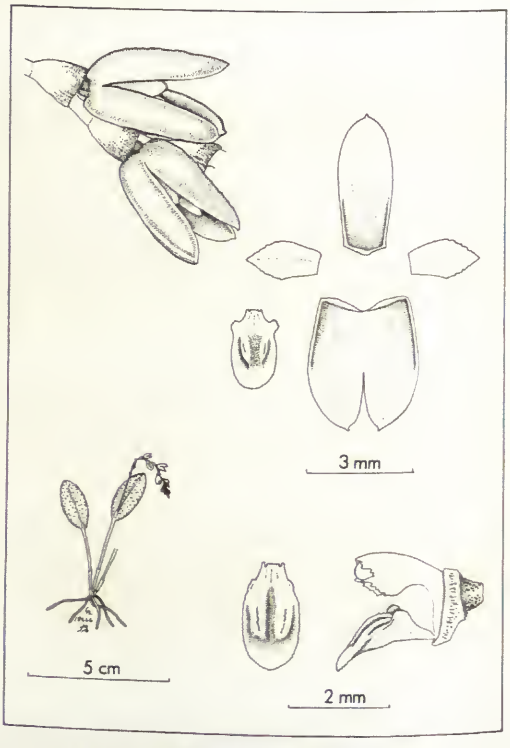

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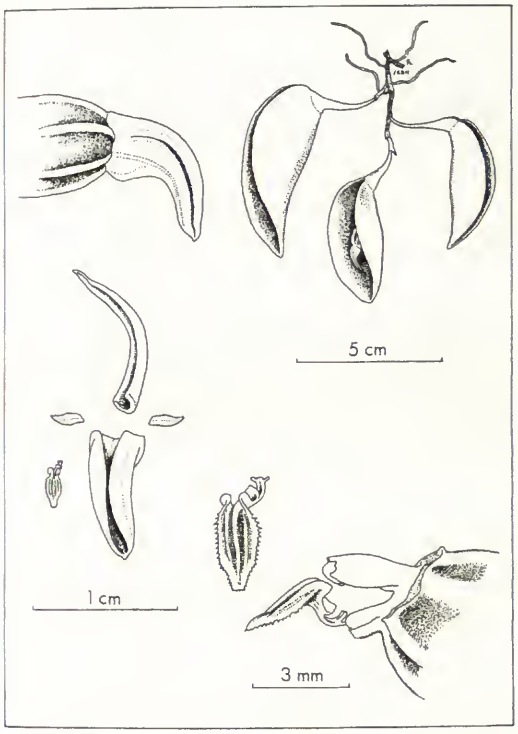

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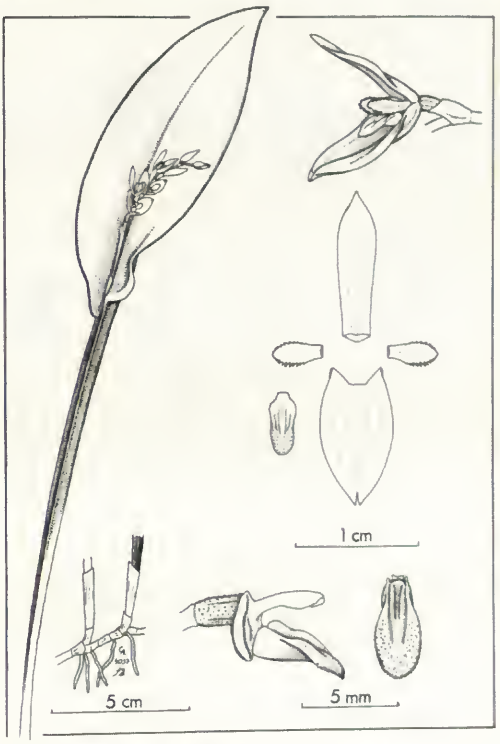

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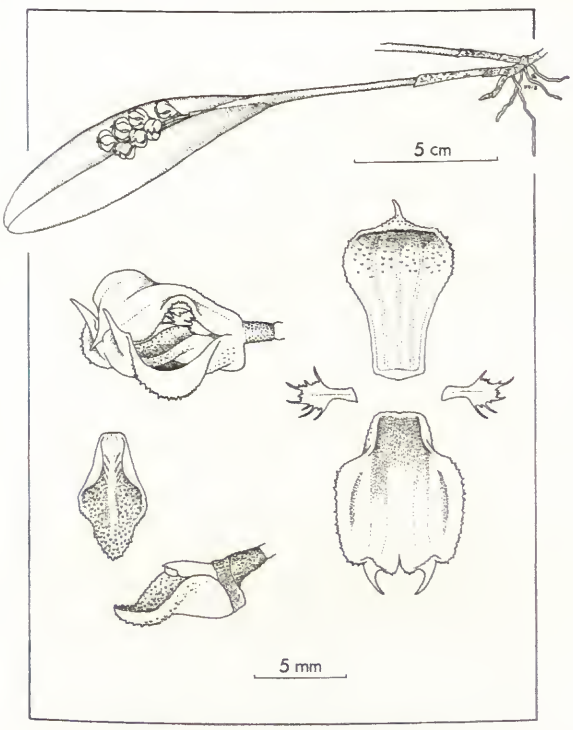

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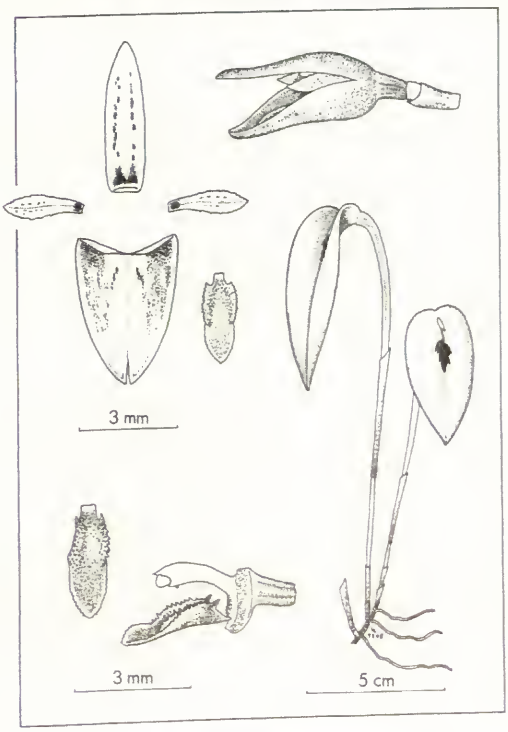

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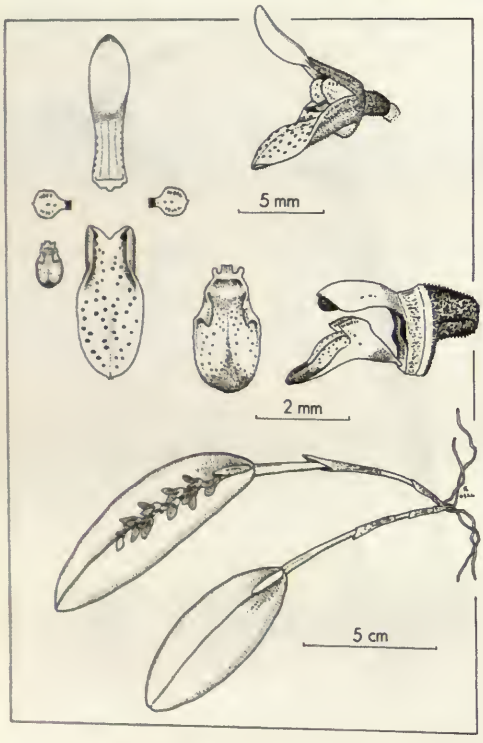

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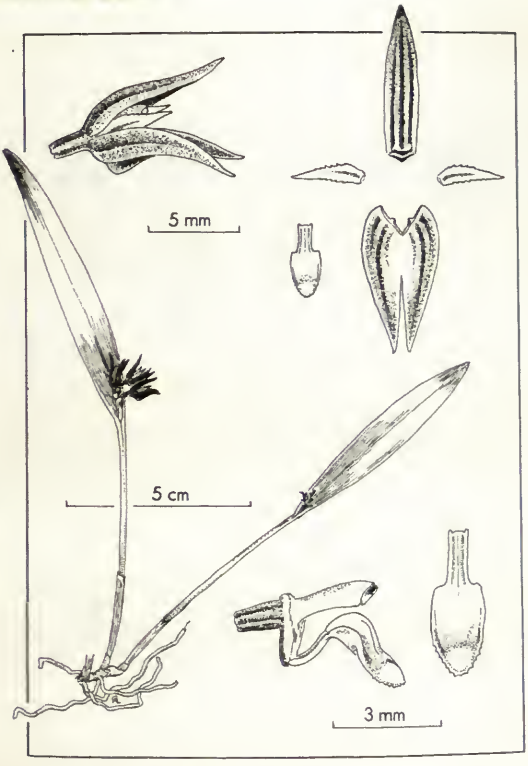

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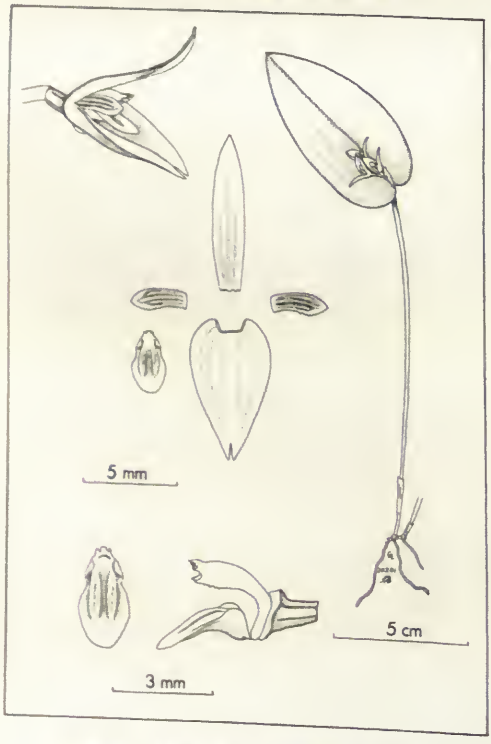

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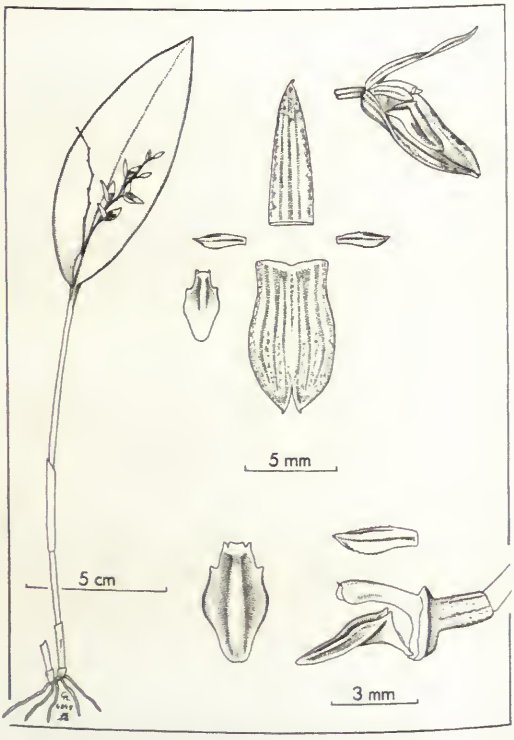

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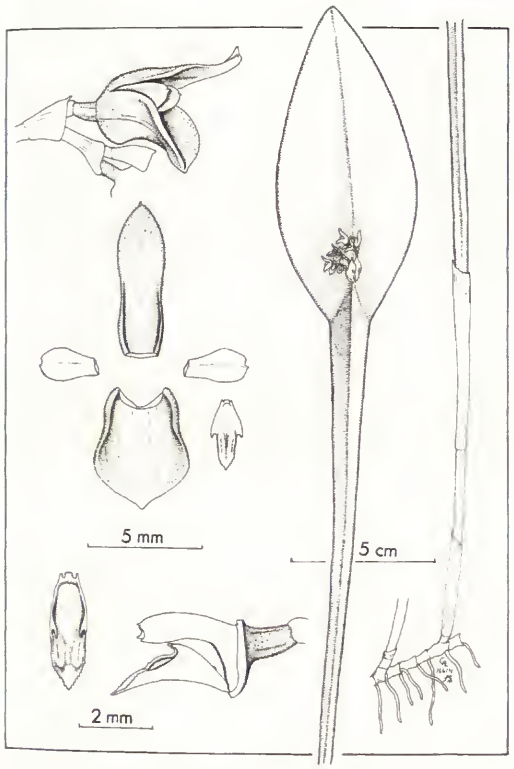

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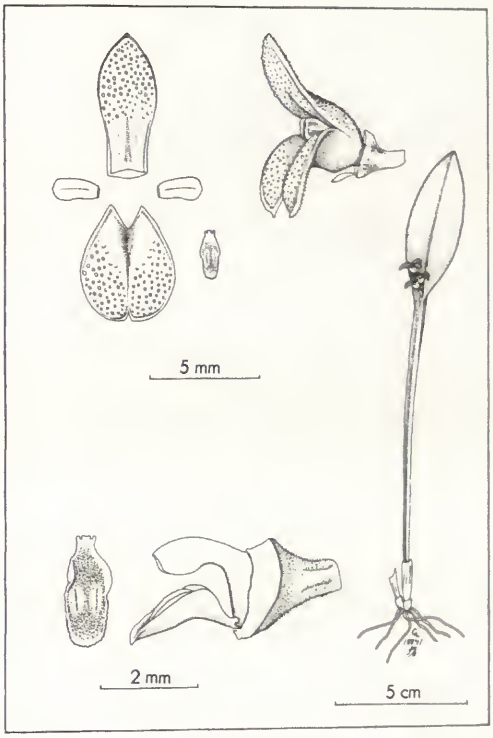

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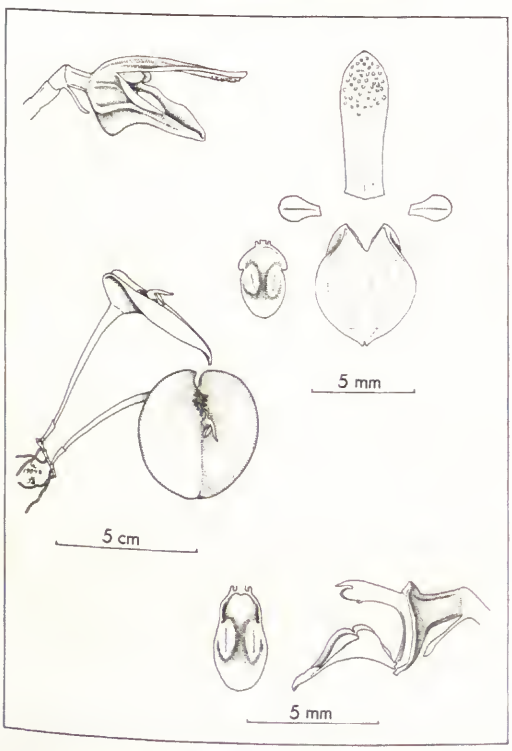

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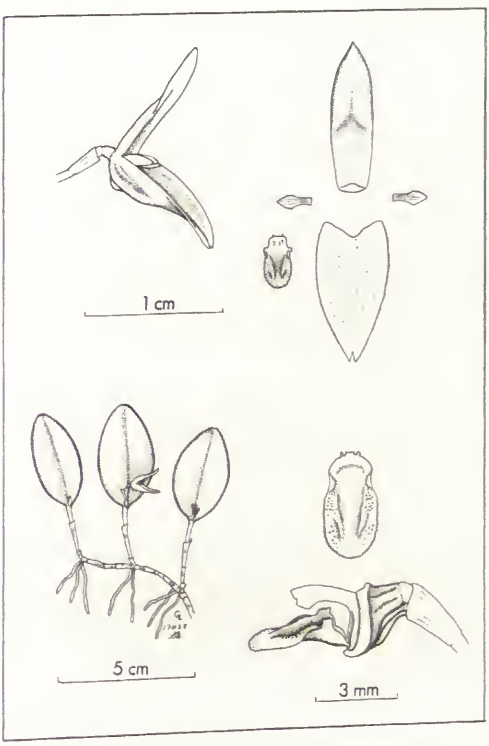

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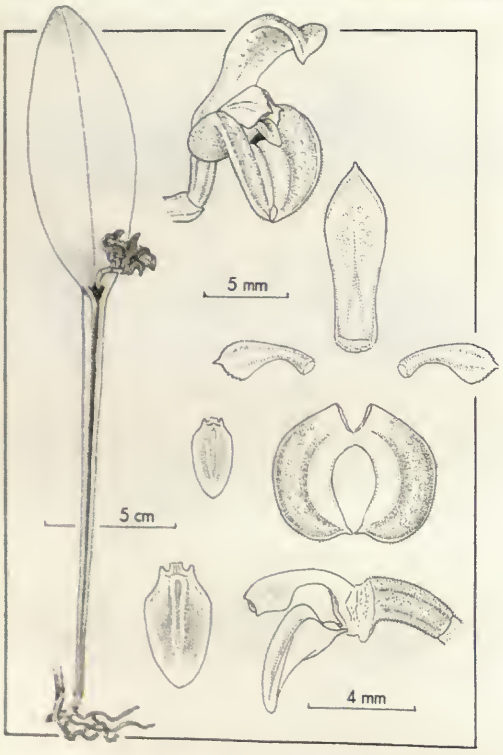

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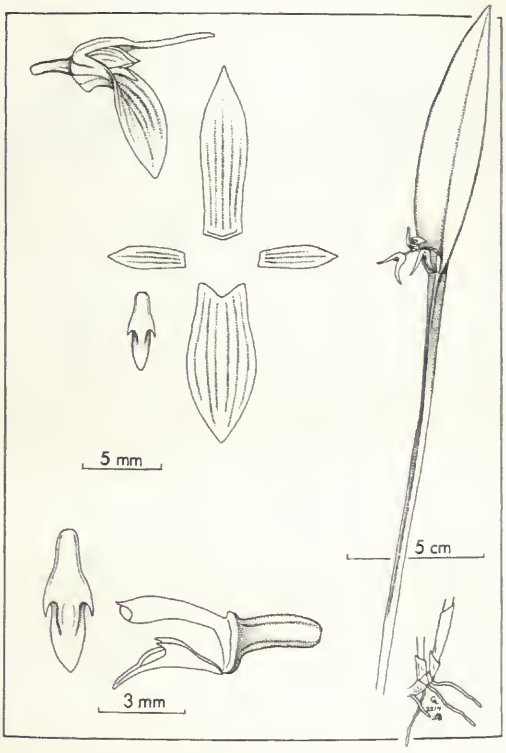

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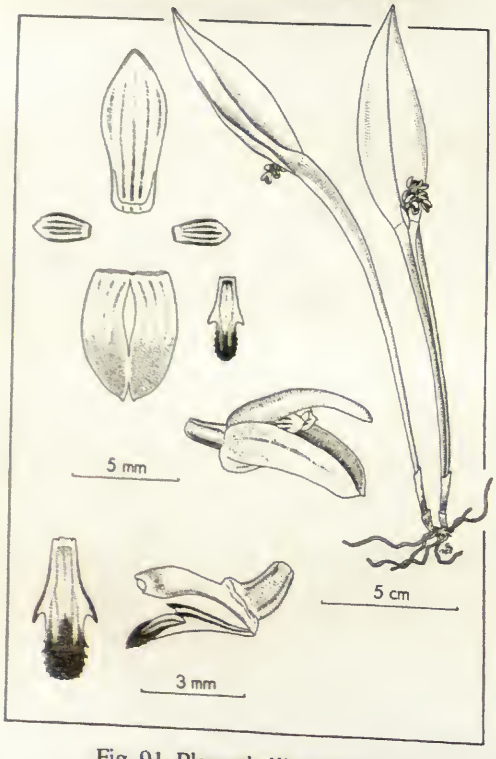

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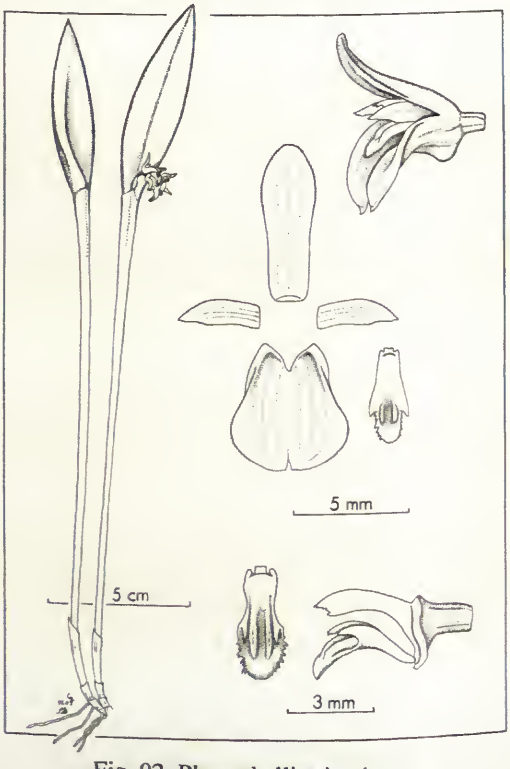

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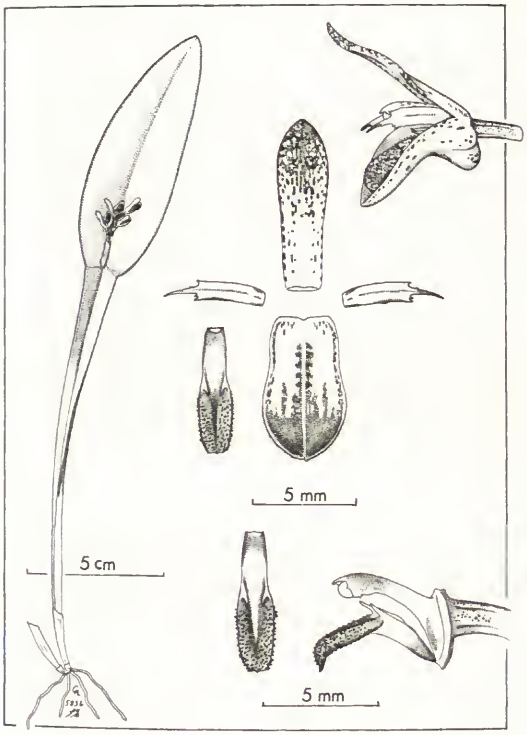

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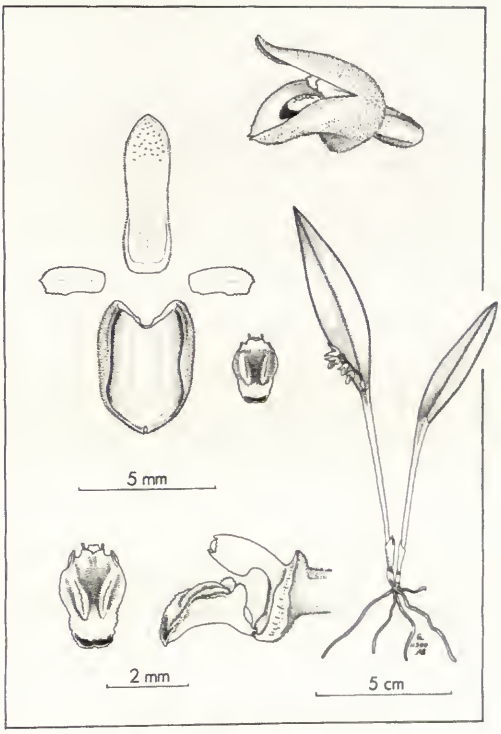

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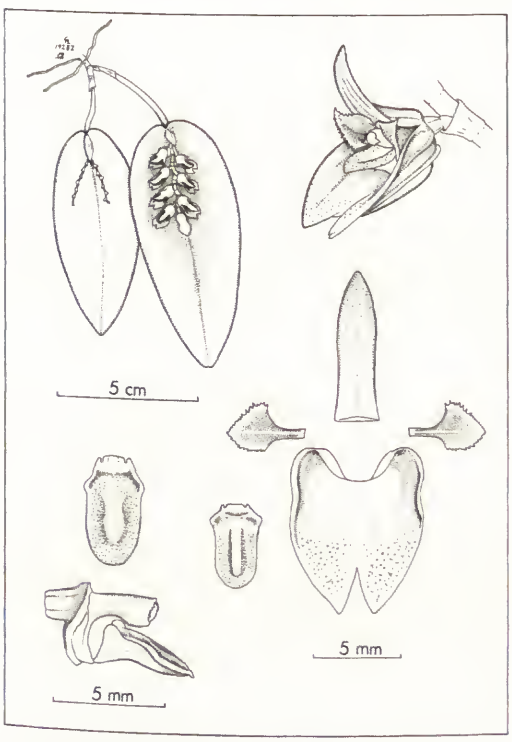

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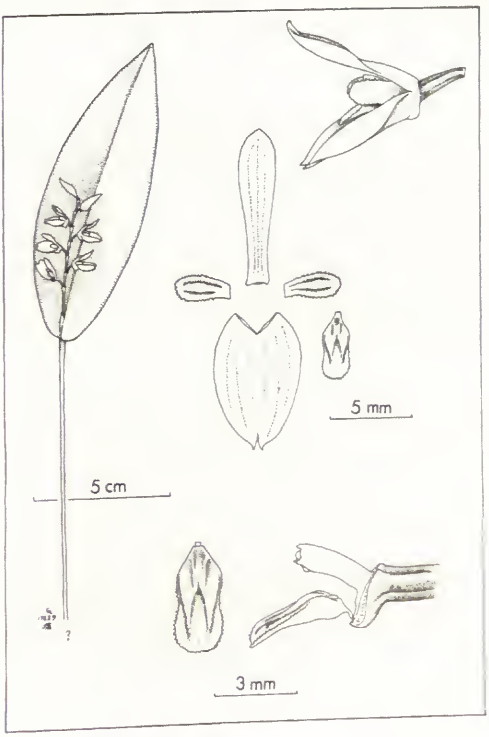

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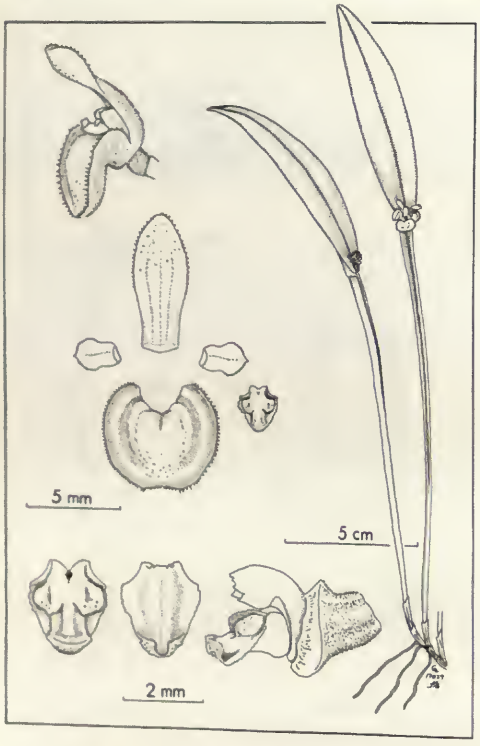

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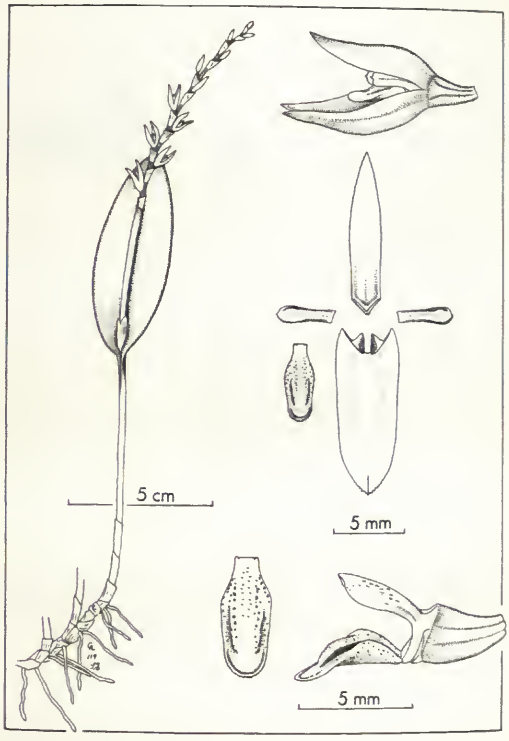

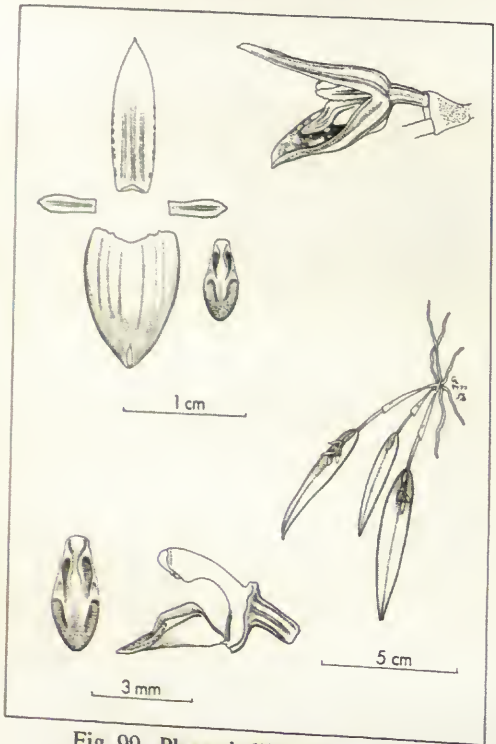

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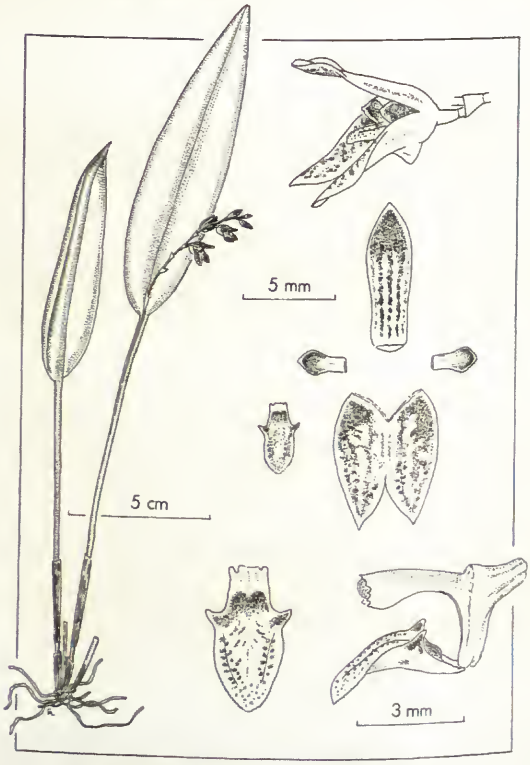

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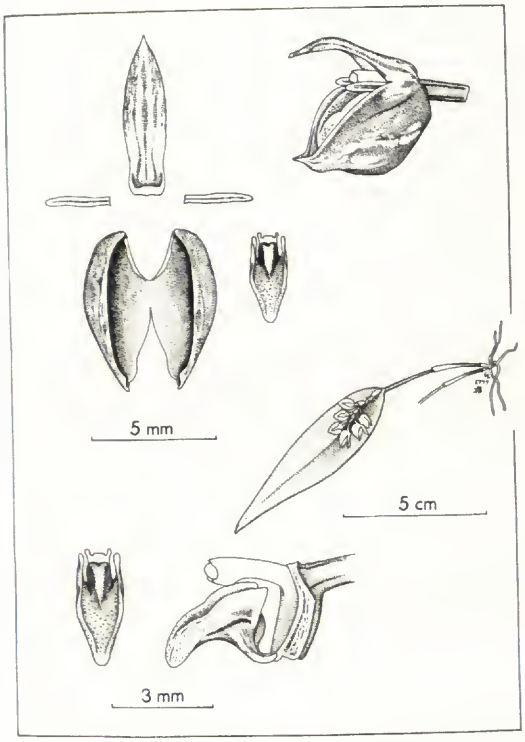

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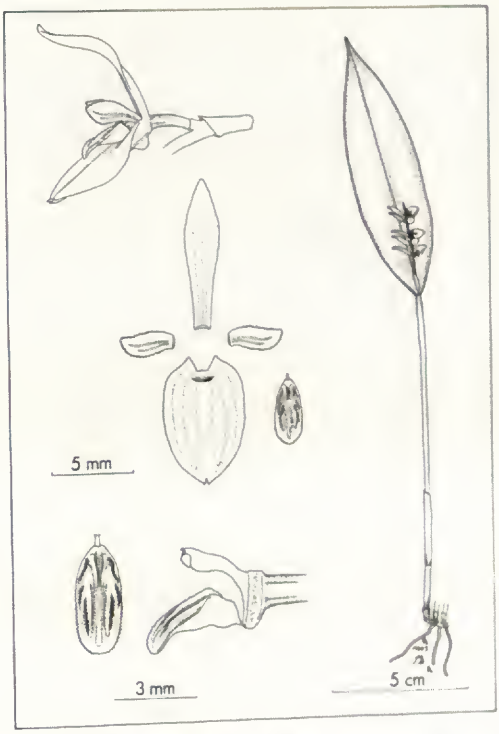

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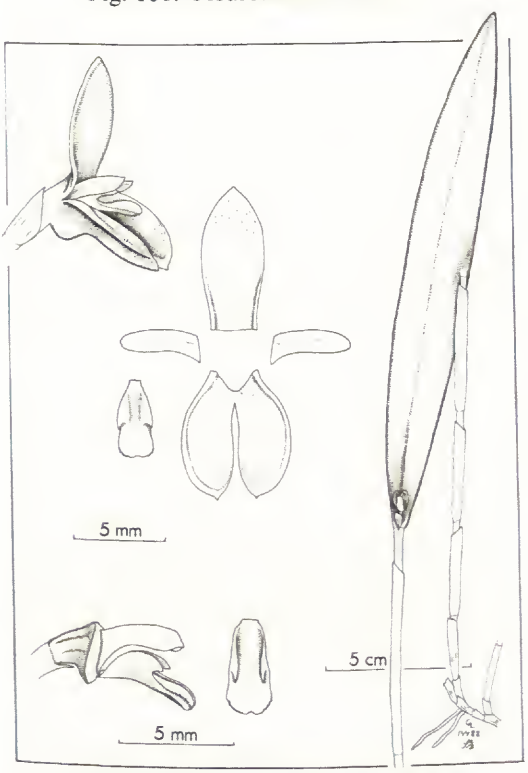

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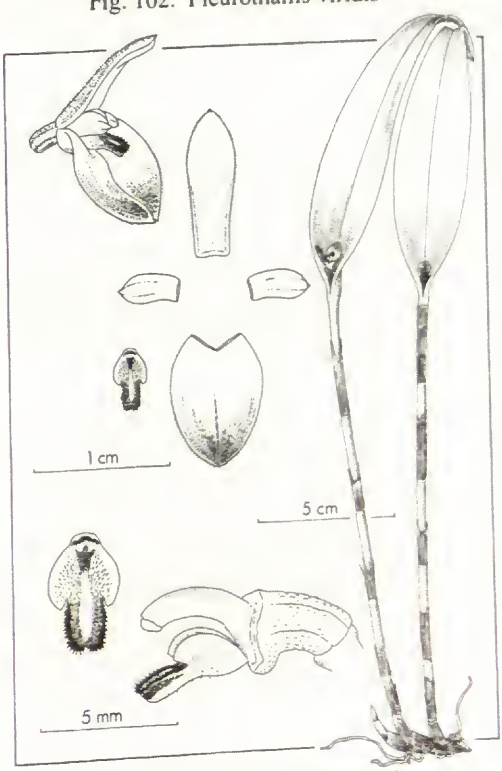

Fig. 104. Pleurothallis wageneriana
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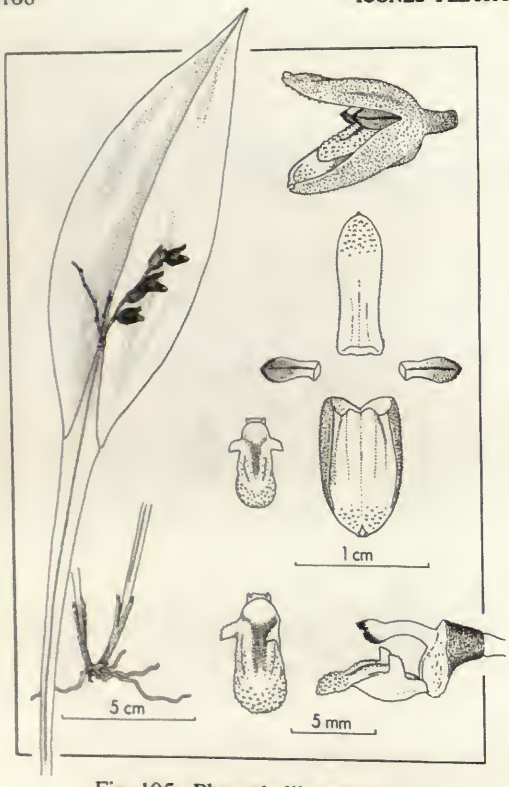

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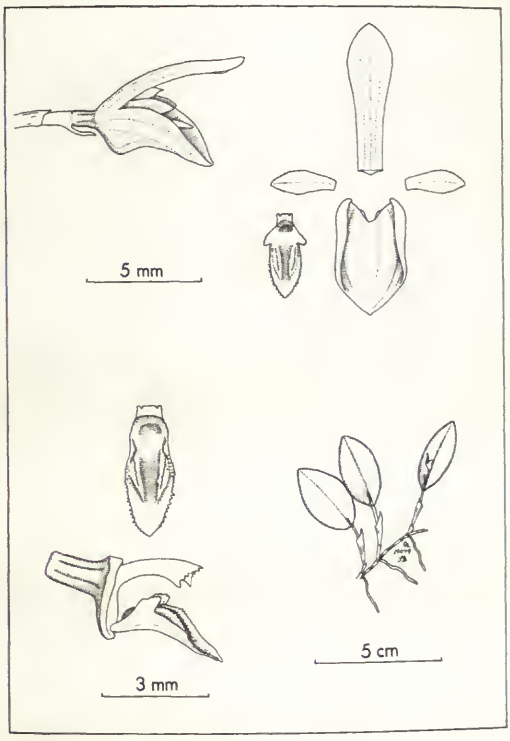

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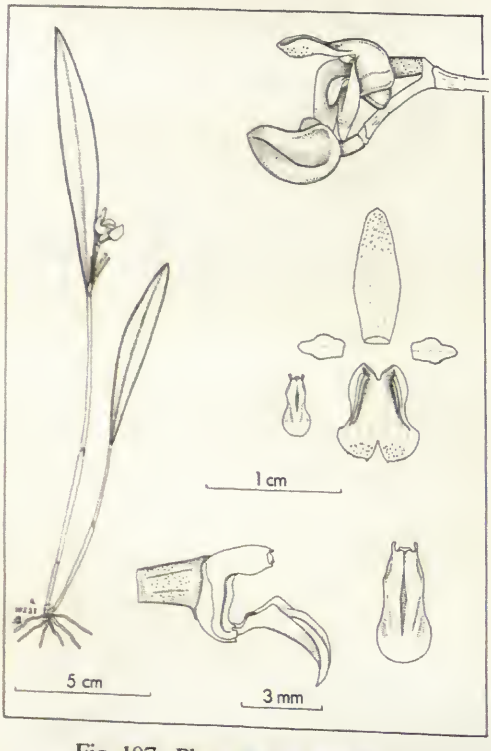

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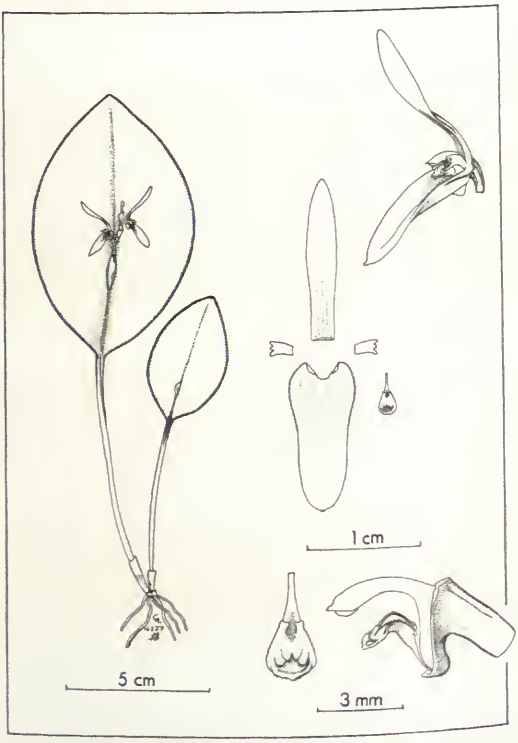

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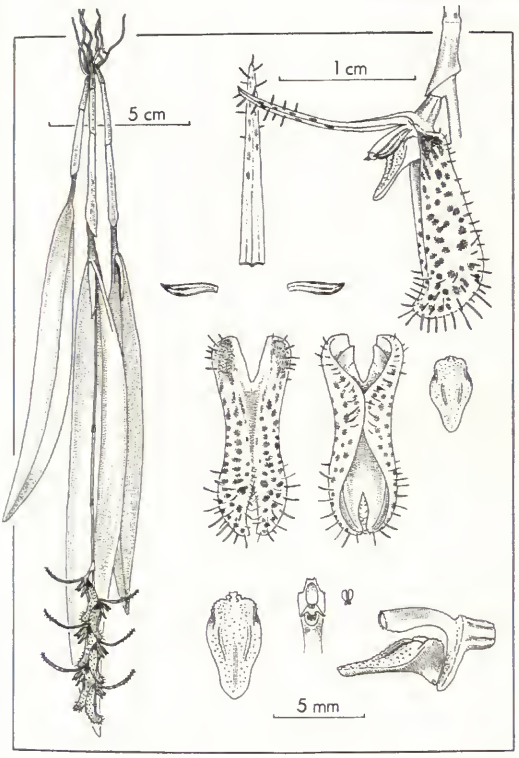

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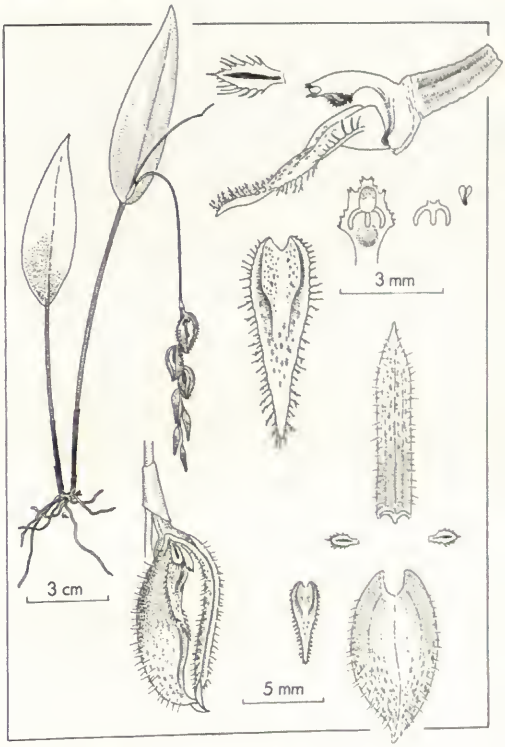

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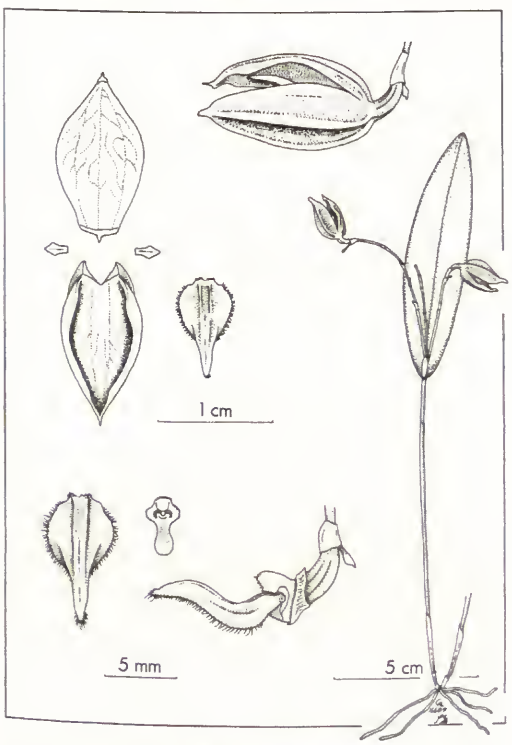

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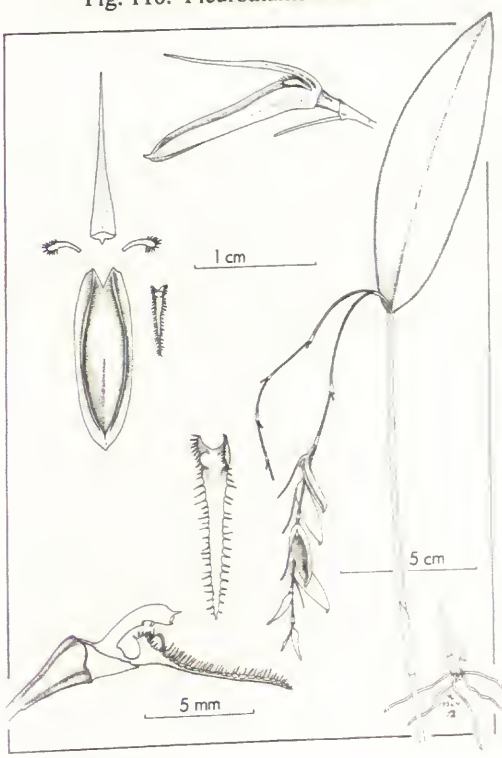

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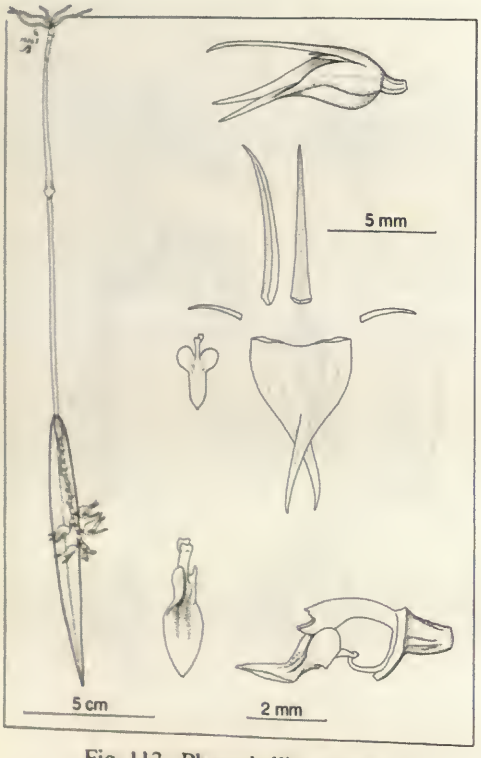

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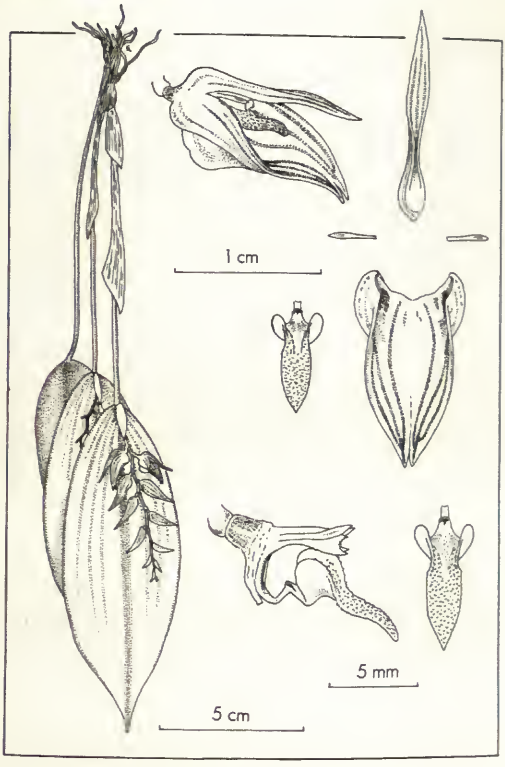

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LUER, C.A., 2002. A systematic method of classification of the Pleurothallidinae versus a strictly phylogenetic method. Selbyana 23(1): 57-100.

ABBREVIATIONS:

Names of Authors according to: R.K. Brummitt & C.E. Powell, 1992. Authors of Plant Names, Royal Botanic Gardens, Kew.

Names of Publications according to: Lawrence, G.H.M., A.F. Günther Buchheim, G.S. Daniels & H. Dolezal, 1968. Botanico-Perodicum-Huntianum. Hunt Botanical Library, Pittsburgh.

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A SECOND CENTURY OF NEW SPECIES OF *STELIS* SW. OF ECUADOR

Schlechter published in 1921 a list of 78 species of *Stelis* that had been reported from Ecuador. About 43 of these names are presently accepted, the remainder being misidentified, erroneously attributed to Ecuador, or represented by synonymous names. About 80 additional species known from other countries have now been identified as inhabitants of Ecuador. The 95 new species from Part One (Luer, 2001) and the present 105 new species raise the number of accepted species in Ecuador to over 320, with still more waiting. Alexander Hirtz of Quito, Ecuador, collector of the vast majority, is acknowledged as co-author.

As in Part One, *A First Century of New Species of Stelis*, the new species are presented alphabetically in five artificial "sections," groups of more or less allied species with some similarity to aid in orientation and identification. For descriptive terminology, please refer to Part One. Treatment of the genus in Ecuador with keys to the species will be included in the final Part Three.

Shortly before Part One was printed, Pridgeon and Chase (2002) published 26 new epithets in *Stelis* for later homonyms found among the 170 redundant transfers from *Pleurothallis* to *Stelis*. Among these epithets are three epithets used in Part One, necessitating the following new names.

Nomina Nova

Stelis gigantissima Luer, *nom. nov.*
Bas.: *Stelis gigantea* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 48, 2002, *non* Pridgeon & M.W.Chase, Lindleyana 17: 99, 2002. = *Pleurothallis powellii* Schltr.

Stelis pilosissima Luer, *nom. nov.*
Bas.: *Stelis pilosa* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 56, 2002, *non* Pridgeon & M.W.Chase, Lindleyana 17: 100, 2002. = *Pleurothallis amparoana* Schltr.

* * *

Five species described in the first 100 new species of Ecuador have subsequently been identified as previously known, albeit obscurely known, species. Five additional new species are added to the second 100 for a total of 200 new species.

Stelis brevilabris Lindl., Ann. Mag. Nat. Hist. ser. 1, 5: 107, 1845.
Syn.: *Stelis serpens* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 82, 2002.

Stelis cuencana Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 53, 1921.
Syn.: *Stelis excavata* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 44: 42, 2002.

Stelis fissa Lindl., Folia Orchid. *Stelis* 5(28). 1858.
Syn.: *Stelis dodsonii* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 42, 2002.

Stelis tridentata Lindl., Folia Orchid. *Stelis* 6(40), 1858.
Syn.: *Stelis ferax* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 46, 2002.

Stelis viridibrunnea Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 448, 1899.
Syn.: *Stelis procera* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 57, 2002.

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Section **DIALISSA**

101. **Stelis maniola** Luer & Hirtz, sp. nov.

Ety.: From the Latin *maniola*, "a bugbear, or hobgoblin," in allusion to the frightful flower.

Planta parva ascendens, racemo plurifloro foliis anguste ellipticis plus minusve aequilongo, sepalis ad basim in cupulam connatis, sepalo dorsali ovato obtuso abrupte ascendienti, sepalis lateralibus in synsepalum ovoideum connatis ad basim profunde saccatum, petalis proportione grandibus triangularibus, et labello suborbiculato antice bicalloso distinguitur.

Plant small, epiphytic, ascending, the rhizome stout, erect; roots slender. Ramicauls ascending, erect, slender, 1.5-2 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 3-5 cm long including a petiole ca. 1 cm long, the blade 4-6 mm wide, narrowly acuminate below into the petiole. **Inflorescence** an erect, congested, distichous, simultaneously several-flowered raceme, 3-4.5 cm long including the peduncle ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2-2.5 mm long; pedicels 1.5 mm long; ovary 1-1.5 mm long; **sepals** glabrous, the dorsal sepal purple, broadly ovate, obtuse, 4 mm long, 2.5 mm wide, 3-veined, connate 1 mm to form an inflated base of the sepaline tube, reflexed above the tube, the lateral sepals white, connate into an ovoid, obtuse synsepal, saccate at the base, 4 mm long, 2.5 mm wide, 6-veined; **petals** broadly triangular, obtuse, with the margin thickened and studded with cells, 1 mm long, 1.5 mm wide, 3-veined; **lip** subspheroid, 0.5 mm long, 0.66 mm wide, 0.66 mm deep, the apex broadly rounded with a broad margin, the bar higher than the sides with a minute pair of teeth on the margin, the anterior surface convex with a pair of rounded calli, shallowly concave between, the dorsum sloping posteriorly, with a central, rounded callus, hinged to the base of the column; **column** stout, 1 mm long with the stigmatic processes protuberant beyond the anther, 0.8 mm wide.

Esmeraldas: wet forest west of Lita, alt. 750 m, 18 Jan. 1987, *C. Luer, J. Luer, C. Dodson, A. Hirtz & D. Benzing 12406* (Holotype: MO); same collection data, *C. Luer et al. 12390* (MO); between Lita and San Lorenzo, alt. 800 m, 27 June 1991, *C.H. Dodson, H.v.d. Werff & B. Gray 18728* (MO), C. Luer illustr. 20056.

This distinctive little species endemic in lowland, northwestern Ecuador is characterized by an ascending rhizome bearing short ramicauls with longer, narrowly elliptical leaves and more or less equally long racemes. The sepals are connate basally into a saccate tube similar to that of *S. dialissa*. The dorsal sepal partially reflexes upward to expose the cavity of the synsepal. The broadly triangular petals and minute, rounded lip are borne on the posterior wall out of sight. The lip is intricately sculpted with a pair of minute teeth on the margin of the bar above a pair of rounded calli.

Section **NEXIPOUS**

102. **Stelis bovilinguis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *bovilinguis*, "like a cow's tongue," referring to the lip.

Planta mediocris, racemo congesto grandibracteato, sepalis ovatis acutis lateralibus divergentibus, labello trilobo, lobo mediano linguiformi introrso et lobis lateralibus rotundis distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 7-10 cm long, enclosed by a loose, tubular sheath on the middle third, and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 5-10 cm long, 1.5-2 cm wide, cuneate below into a petiole ca. 1 cm long. **Inflorescence** an erect, secund, congested, simultaneously several-flowered raceme, 11 cm long including the peduncle ca. 1 cm long, with most flowers open simultaneously and overlapping, with a spathe 1 cm long, from near the apex of the ramicaul; floral bracts large, oblique, oblique, acute, 10 mm long below to 5 mm long near the tip; pedicels 3 mm long; ovary 2 mm long; **sepals** olive green, orange externally below the middle, glabrous, nearly expanded, ovate, acute, the dorsal sepal connate below the middle, 7.5 mm long, 4.75 mm wide, 3-veined, the lateral sepals connate 1 mm, oblique, 7.5 mm long, 4.5 mm wide, 3-veined; **petals** light green, transversely suboblong, the apex transversely rounded, slightly thickened, shallowly concave below the middle, 1 mm long, 1.6 mm wide, faintly 3-veined; **lip** light green, trilobed, 2.75 mm long expanded, 2.6 mm wide, 0.5 mm thick, with a pair of transverse calli at the base of the middle lobe, the middle lobe oblong and rounded, shallowly concave, curved up in the natural position before the column, the lateral lobes rounded, expanded, the base broadly truncate, hinged to a column-foot less than 1 mm long; **column** minute, 1 mm long and wide, the anther and the narrowly bilobed stigma apical.

Pastaza: Cordillera de Llanganates, along Río Zuñag, alt. 2400 m, 25 Feb. 1990, *A. Hirtz, S. Dalström et al. 4629* (Holotype: MO); same area, north of Topo, alt. 2400 m, 20 Feb. 1990, *S. Dalström & L. Årnby 1402* (MO).

This species is known only from a remote valley in the Cordillera de Llanganates. The relatively large flowers alternatingly face the same direction and overlap. The sepals are triangular and acute, the laterals nearly free and opposite 180°. The petals are very small and transverse. The lip is large and trilobed with the middle lobe curved upward like a tongue of a cow in front of the column; the lateral lobes are rounded and expanded to either side.

103. **Stelis reniformis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *reniformis*, "kidney-shaped," referring to the petals.

Planta robustis caespitosa, racemo secundo multifloro folio anguste elliptico longiore, sepalis ellipticis obtusis lateralibus liberis, petalis crassis reniformibus, et labello oblongo acuto distinguitur.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 3 mm thick, 10-17 cm long, enclosed by 2 large, loose, tubular sheaths and another sheath at the base. **Leaf** erect, thickly coriaceous, narrowly elliptical, acute, 10-17 cm long including a petiole ca. 1.5 cm long, the blade 1.8-2.2 cm wide, cuneate below into the petiole. **Inflorescence** a stout, rigidly erect, congested, secund, many-flowered raceme, many flowers open simultaneously, 15-30 cm long including the peduncle 4-10 cm long, from a slender spathe 1.5-2 cm long; floral bracts tubular, 5-6 mm long; pedicels 2 mm long, enclosed within the bract; ovary 3 mm long; flowers dark purple; **sepals** glabrous externally, microscopically cellular within, ovate, obtuse, the dorsal sepal 10 mm long, 6 mm wide, 3-veined, connate 2 mm basally to the lateral sepals, the lateral sepals free, 9 mm long, 6 mm wide; **petals** thick, convex, transversely oblong-reniform with the ends rounded, 1 mm long, 1.75 mm wide, 3-veined, shallowly concave at the base; **lip** oblong-subquadrate with the apex triangular, acute, 1.25 mm long, 1 mm wide, 0.6 mm deep, the anterior surface shallowly concave with a glenion, the dorsum more or less flat, shortly pubescent, the base truncate, hinged to the base of the column; **column** stout, 1.25 mm long, 1.25 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: south of Yangana above Valladolid, alt. 1900 m, 23 Mar. 1985, *C. Luer, J. Luer & A. Hirtz 10851* (Holotype: MO).
Morona-Santiago: Cordillera del Condor, east of Chuchumbletza, alt. 1750 m, 21 May 1988, *C. Luer, A. Hirtz et al. 13546* (MO); Guarumales, alt. 1400-1800 m, 18 Apr. 2001, *A. Hirtz, X. Hirtz, H. Zelenko & R. Zloch 7571* (MO).

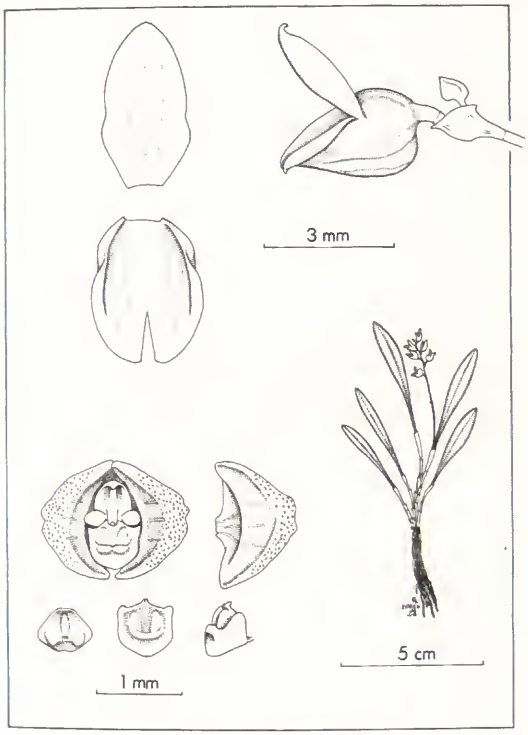

Fig. 101. Stelis maniola

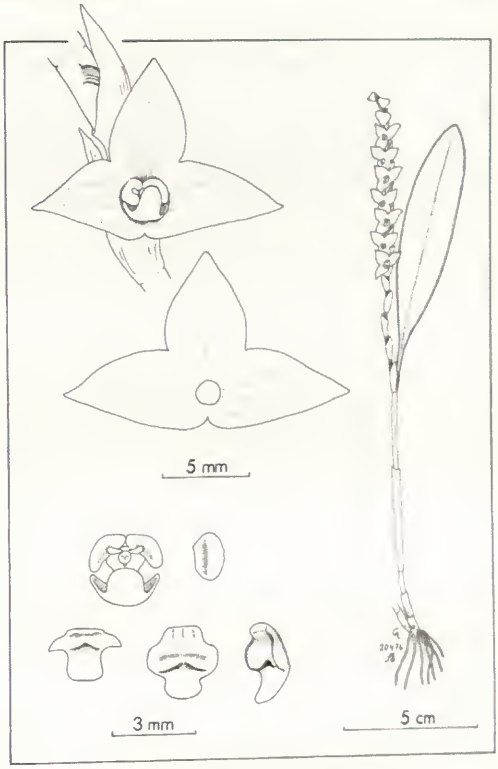

Fig. 102. Stelis boviliguis

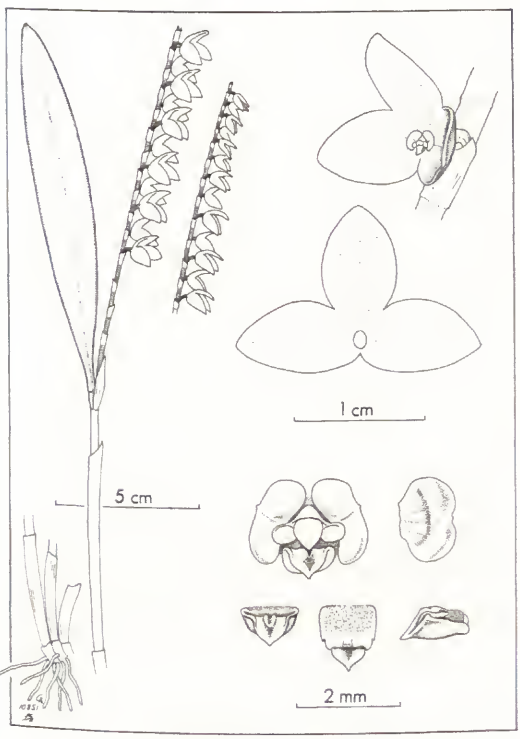

Fig. 103. Stelis reniformis

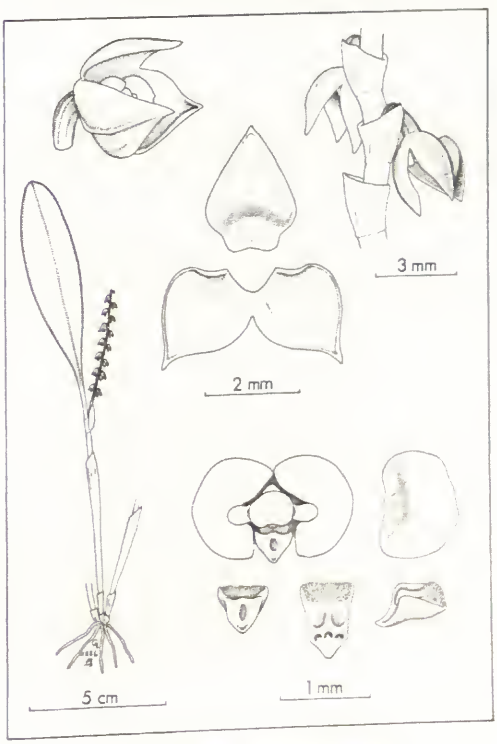

Fig. 104. Stelis saurocephala

This large species is found in southernmost Ecuador, and most certainly also occurs in neighboring Peru. It is distinguished by the large, elliptical, thickly coriaceous leaves about as long as the stout, thick ramicauls. The long, strict raceme is borne by a thick peduncle. The sepals are elliptical and not widely spread in spite of the lateral sepals' being free from each other. The petals are large, fleshy, convex and kidney-shaped. The lip is subquadrate with an acute apex and pubescent base.

104. **Stelis saurocephala** Luer & Hirtz, sp. nov.

Ety.: From the Greek *saurocephalos*, "lizard-headed," referring to the flowers.

Planta mediocris racemo multifloro folio elliptico semilongiore, floribus nutantibus, sepalis glabris crassis ovatis acutis semiclausis, petalis transversis crassissimis grandibus, et labello cuneato ad apicem subacuto ad basim pubescenti late truncato distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5-7 cm long, enclosed by a long, tubular sheath from above the base and 2 other sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 5-7 cm long including the petiole 2 cm long, the blade 1.5-2.2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, simultaneously flowered raceme, 4-5 cm long, flowering to the base, with a spathe 1 cm long, at an annulus below the apex of the ramicaul; floral bracts tubular, 2.5 mm long; pedicels 1.5 mm long; ovary 1.5 mm long, acutely arcuate with the flower facing downward; **sepals** thickly fleshy, carinate, glabrous, purple externally, yellow internally, the dorsal sepal ovate, acute, curved forward, 2.6 mm long, 2 mm wide, 3-veined, connate 0.5 mm with the lateral sepals to form a cup, the lateral sepals held forward, broadly ovate, oblique, obtuse, shortly acuminate, 2.5 mm long, 2 mm wide, 3-veined; **petals** purple, thick, semiorbicular, 0.8 mm long, 1.2 mm wide, 3-veined; **lip** purple, cuneate-oblong, 1.5 mm long, 0.6 mm wide at the base, 0.3 mm deep, concave above the subacute apex, the bar with a glenion, the dorsum densely pubescent above the base, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: Cordillera del Condor east of Guisme, alt. 950 m, 18 Feb. 1986, *C. Luer, J. Luer, A. Hirtz & W. Flores & A. Embree 11885* (Holotype: MO).

This strange species is known only from the Cordillera del Condor. It is characterized by an elliptical, petiolate leaf about as long as the ramicaul. The raceme is barely half as long as the leaf or shorter. The small, half-open, fleshy flowers are held against the rachis and face downward. The sepals are fleshy and acute with the lateral opposite when spread. The thick, semiorbicular petals are proportionately large, surrounding the lip, only the apex of which protrudes from between the petals. Although not obviously a member of section *Nexipous*, the morphology of the central apparatus is very similar to that of other members of the section.

Section **HUMBOLDTIA**

105. **Stelis alpina** Luer & Hirtz, sp. nov.

Ety.: From the Latin *alpinus*, "of a high altitude," referring to the habitat.

Species haec *S. purpureae* (Ruiz & Pav.) Willd., affinis, sed bracteis longioribus, sepalis majoribus acutis, petalis supra columnam profunde superpositis, et labelli glenio angustissimo distinguitur.

Plant large, terrestrial to presumably epiphytic, densely caespitose; roots slender. Ramicauls erect, stout, 14-20 cm long, enclosed by a loose, tubular sheath on the middle third and 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical-oblong, subacute, petiolate, 10-13 cm long including the petiole 1.5-3 cm long, the blade 2-3.5 cm wide, contracted below into the petiole. **Inflorescence** 1-2 erect, subcongested, distichous, many-flowered racemes with many flowers open simultaneously, 18-21 cm long including the peduncle ca. 5 cm long, with a spathe 1.5-2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 11 mm long below to 5 mm long above; pedicels 3 mm long; ovary 3 mm long; flowers non-resupinate, bilabiate; **sepals** purple, glabrous, the dorsal sepal triangular, acute, 11 mm long, 7 mm wide, 5-veined, connate 3 mm to the synsepal, the lateral sepals connate into an ovoid-triangular, obtuse, concave synsepal, 9 mm long, 9 mm wide, 10-veined; **petals** yellow-green, thickly semilunate, overlapping above the column, 1.5 mm long, 2.3 mm wide, 3-veined, concave below the broadly thickened, rounded apex, and concave basally below the transverse callus; **lip** yellow-green, transversely oblong-triangular, 0.9 mm long, 1.5 mm wide, 1 mm deep, the apex broadly rounded, the bar shallowly concave with a very narrow glenion, the dorsum with 3 rounded calli, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Carchi: west of the pass west of Tulcán, terrestrial on the road embankment, Bosco, alt. 3400 m, 16 Mar. 1991, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15046* (Holotype: MO); same collection data, *C. Luer, J. Luer, J. del Hierro, A. & X. Hirtz 15049* (MO); between Tulcán and Maldonado, alt. 3200 m, 9 Nov. 1982, *C. Luer & R. Escobar 8315* (SEL).

This species is known from a high altitude on a slope of Volcán Chiles in northernmost Ecuador. It is distinguished from those species most closely allied to *S. purpurea* by producing one or two long, long-bracted, many-flowered racemes of large, gaping flowers, more than twice as long as elliptical-ovate leaves. The dorsal sepal is triangular and acute while the synsepal is ovate and concave. The central apparatus is proportionately small with thick petals deeply overlapping the column. The lip is transverse and broadly rounded with a very narrow glenion and with three calli on the dorsum.

106. **Stelis buccella** Luer & Hirtz, sp. nov.

Ety.: From the Latin *buccella*, "a tiny morsel," referring to the minute size of the flower.

Inter species sectionis *Humboldtiae* habitu floribusque minutissimis, sepalo dorsali 3-nervato, petalis tenuibus trinervatis et labello obtuso dorso calloso differt.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-7 mm long, enclosed by a ribbed, tubular sheath, and another at the base. **Leaf** erect, coriaceous, elliptical-obovate, subacute, 12-20 mm long including a petiole 3-5 mm long, the blade 3-5 mm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, simultaneously few-flowered raceme, 20-25 mm long including the peduncle 10-15 mm long, with a spathe ca. 2 mm long, at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 1.25 mm long; ovary 0.8 mm long; **sepals** dull green, glabrous with cells prominent, the dorsal sepal erect, broadly ovate, subacute or obtuse, 1.75 mm long, 1.6 mm wide, 3-veined, connate basally to the synsepal, the lateral sepals connate into a broadly ovoid, bifid, concave synsepal, 1 mm long, 1.5 mm wide expanded, 6-veined; **petals** green, transversely semilunate, thin, shallowly concave, with the apex broadly obtuse, with the margin slightly thickened, 0.4 mm long, 0.7 mm wide, 3-veined; **lip** thickly triangular, obtusely rounded at the apex, 0.4 mm long, 0.5 mm wide, 0.4 mm deep, the anterior surface shallowly concave, the bar with a small, marginal glenion, the dorsum shallowly concave with a low, round callous, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: Cordillera del Cutucú, along new road east of Mendez, alt. 800 m, 5 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12645* (Holotype: MO); same area, alt. 1000 m, 5 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12667* (MO).
Napo: north of Tena, new road to Coca, alt. 1100 m, 22 Feb. 1982, *C. Luer & A. Hirtz 6938* (SEL).

This species, one of the smallest known members of section *Humboldtia*, is known from lowland, eastern Ecuador within the Cordillera del Cutucú. It is characterized by the very small clump of narrow leaves somewhat surpassed by a few-flowered raceme of tiny flowers. The dorsal sepal is three-veined; the lateral sepals are connate to near their tips into a broadly ovate, concave, bifid synsepal; the transverse petals are thin and three-veined, and the minute lip is obtuse with a round callus on the dorsum.

107. **Stelis cajanumae** Luer & Hirtz, sp. nov.

Ety.: Named for the Cajanuma Range where the species occurs.

Species haec *S. purpureae* (Ruiz & Pav.) Willd. affinis, sed habitu minore, racemis binis plurifloris foliis plus minusve aequilongibus, sepalo dorsali reflecto, petalis crassis, labello crasso cum callo protuberanti differt.

Plant medium to large, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 8-13 cm long, enclosed by a tubular sheath near the middle, and 2-3 below the middle and at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, petiolate, 10-12 cm long including a petiole 2-2.5 cm long, the blade 1.2-1.7 cm wide, cuneate below into the petiole. **Inflorescence** 1-2 erect, lax, distichous, simultaneously several-flowered racemes, 8-11 cm long including the peduncle 2-3 cm long, with a spathe ca. 4 mm long; floral bracts infundibular, oblique, acute, 4 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** light brown, glabrous, the dorsal sepal reflexed from the base, broadly ovate, obtuse, 8 mm long, 6 mm wide, 5-(7-)veined, connate basally to the synsepal for 1 mm, the lateral sepals connate into an ovoid, concave synsepal, 6 mm long, 8 mm wide expanded, 5 mm deep, ca. 12-veined; **petals** yellow-orange, thick, transversely ovate, shallowly concave, with the apex broadly rounded, thickened, 1.3 mm long, 1.9 mm wide, 3-veined; **lip** yellow-orange, thickly subovoid, 1.3 mm long, 1.3 mm wide, 1.3 mm deep, concave anteriorly with the rounded apex thickened, the bar with protruding edges on either side of a shallow, central sulcus, the dorsum thickened with a broad, low, central callous, the base truncate, hinged to the base of the column; **column** stout, 1.5 mm long, the anther and the bilobed stigma apical, the foot obsolescent.

Zamora-Chinchipe: Cajanuma range, south of Loja, alt. 2750 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10740* (Holotype: MO); new road north of Loja, alt. 2700 m, 2 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12593* (MO).
Loja: at the pass north of Loja, alt. ca. 3000 m, 12 Feb. 1978, *C. Luer, J. Luer & M. Portilla 2546* (SEL); Parqué Nacional de Podocarpus, Nudo de Cajnuma, alt. 2900 m, 21 Feb. 1985, *B. Ølgaard et al. 57925* (AAU).
Azuay: south of Cumbe, new road to Giron, alt. 3000 m, 27 Feb. 1982, *C. Luer & A. Pozo 7051* (SEL).

This species of section *Humboldtia* is characterized by a slender, densely caespitose habit with ramicauls about as long as the long-petiolate, elliptical leaves. Two racemes about as long as the leaf are produced. The dorsal sepal reflexes above the base and the synsepal is deeply concave with a deeply protruding cavity posteriorly. Within, the petals are unusually thick. The bar of the lip protrudes on either side of a shallow, central sulcus.

108, 108a. **Stelis corniculata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *corniculatus*, "with little horns," referring to the petals and lip.

Species haec *S. mucronatae* Lindl., similis, sed habitu repenti non prolificanti, synsepalo profunde transverse inflato, et petalis labelloque brevissime apiculatis distinguitur.

Plant small to medium in size, epiphytic, long-scandent, repent, the rhizome 1-5 cm long between ramicauls; roots slender. Ramicauls ascending, slender, not prolific, 4-9 cm long, enclosed by a close, tubular sheath below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, petiolate, 4-9 cm long including the petiole ca. 1.5-2 cm long, the blade 1.5-1.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with many flowers open simultaneously, 8-18 cm long including the peduncle 2-4 cm long, from an annulus below the apex of the ramicaul, with a slender spathe 6-10 mm long; floral bracts oblique, 2.5-4 mm long; pedicels 1-1.5 mm long; ovary 1-1.5 mm long; flowers nutant, bilabiate, variously suffused with purple; **sepals** glabrous, the dorsal sepal erect, ovate, obtuse, slightly convex, 3.5-4.5 mm long, 2-2.5 mm wide, 3-veined, connate 1 mm basally to the synsepal, the lateral sepals connate into a

broadly or transversely ovate, deeply concave synsepal, 3-3.5 mm long, 3.5 mm wide, 4-veined; **petals** thickly semilunate, 1 mm long, 1 mm wide, 3-veined, the apex broad, contracted into a small, thick apiculum on the inner margin, concave above the base, the base broadly truncate; **lip** thick, subquadrate-trilobed, 1 mm long, 1 mm wide, 0.5 mm deep, the apex obtuse, contracted into a short triangular-acute apiculum, the bar with a small glenion, the dorsum with a thick, obscurely trilobed callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Carchi: forest between Tulcán and El Carmelo, alt. 3200 m, 6-7 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11128* (Holotype: MO); between El Playón and Santa Barbara, alt. 3400 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15212* (MO); El Playón, alt. 3100 m, Feb. 1995, *A. Hirtz 6210* (MO).
Sucumbíos: south of Santa Barbara, alt. 2700 m 6 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11105* (MO).

Vegetatively, this long-repent species found in northernmost Ecuador at high altitudes is similar to the long-prolific, pointed petaled *S. pugiunculi* and *S. triseta*. It is distinguished from the latter two by the small, alternating, non-resupinate, nutant, more or less orbicular flowers appressed against the rachis. The synsepal is short, deeply and broadly transverse, and inflated with incurved sides. The petals have a short, obtuse apiculum on the inner margin of the thick, rounded apex; the lip is shallow and obtuse with a short, acuminate apiculum.

109. **Stelis delhierroi** Luer & Hirtz, sp. nov.

Ety.: Named for Juan del Hierro of Quito, co-collector of this species.

Planta parva caespitosa, racemo flexouso successivi- plurifloro folio elliptico petiolato bis vel ter longiore, sepalis lateralibus in synsepalum infra medium concavum supra medium convexum connatis, labello subquadrato apice late rotundo disco unicalloso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, comparatively stout, 5-10 mm long, enclosed by 2 loose, ribbed, tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 20-25 mm long including the petiole 5-7 mm long, the blade 6-9 mm wide, cuneate below into the petiole. **Inflorescence** an erect or suberect, lax, flexible, flexuous, successively several-flowered raceme, with only 1 flower open at a time, up to 8 cm long or longer including the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 2.5 mm long; ovary 2 mm long; **sepals** glabrous externally, cellular within, the dorsal sepal rose, convex with the sides recurved, broadly ovate, obtuse, connate basally 1 mm, 11 mm long, 7 mm wide expanded, 7-veined (incompletely), the lateral sepals yellow-green, connate above the middle into a synsepal concave below the middle, convex above the middle, 11 mm long, 8 mm wide expanded, 8-veined, the apex obtuse, split for 3 mm; **petals** dark purple, semilunate, 1 mm long, 1.25 mm wide, 3-veined, the apex broadly rounded, concave below the thickened margin, concave basally below a transverse callus; **lip** dark purple, subquadrate, 0.5 mm long, 1.3 mm wide, 0.75 mm deep, shallowly concave above the broadly rounded apex with a thickened margin, the bar with a very small glenion terminating a rounded callus on the dorsum, the base truncate, hinged to the base of the column; **column** stout, less than 1 mm long, 1.3 mm wide, the anther and the stigma apical, the foot obsolescent.

Imbabura: forest southeast of Lita, alt. 1200 m, 11 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, J. del Hierro et al. 15550* (Holotype: MO).

This species, known only from northwestern Ecuador, is characterized by a small habit with elliptical leaves that are far surpassed by a loose, flexuous raceme that produces one, proportionately large flower successively. The sides of the dorsal sepal are recurved, and the synsepal is concave below the middle and convex above with recurving sides. The petals are semilunate; the lip is shallowly concave with a broadly rounded apex and a single, rounded callus on the dorsum.

110. **Stelis fortis** Luer & Dalström, sp. nov.

Ety.: From the Latin *fortis*, "vigorous, strong," referring to the habit.

Planta grandis longiproliferans, racemo elongato multifloro folio grandi late elliptico petiolato multi-longiore, sepalis lateralibus in synsepalum ovoideum concavum connatis, petalis crassis, crescentibus, et labello subtriangulari apice obtuso glenio parvo, ad dorsum calloso distinguitur.

Plant large, epiphytic, long-scandent; roots slender. Ramicauls erect, stout, 7-20 cm long, enclosed by a close, tubular sheath from below the middle and at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 8-14 cm long including the petiole 1-1.5 cm long, the blade 3-5 cm wide, cuneate below into the petiole. **Inflorescence** an erect or suberect, lax, distichous, many-flowered raceme, with most flowers open simultaneously, up to 33 cm long or longer including the peduncle ca. 15 cm long, with a spathe ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 10 mm long below to 6 mm long above; pedicels 3 mm long; ovary 2 mm long; **sepals** glabrous, the dorsal sepal pale purple, ovate, subacute, 10 mm long, 5 mm wide, with 5 primary veins plus 4 incomplete veins, connate basally to the synsepal for 2 mm, the lateral sepals greenish, connate to the apex into an ovoid, concave synsepal, deeply concave below the column and lip, 9 mm long, 7 mm wide unexpanded, 6-veined, the apex narrowly obtuse; **petals** thickly crescentiform, 1 mm long, 2 mm wide, 3-veined, the apex broadly rounded with thick, flattened margins, concave basally below a transverse callus; **lip** subtriangular, 0.9 mm long, 1.2 mm wide, 0.75 mm deep, shallowly concave anteriorly with the apex obtuse with a thickened margin, the bar with a glenion, the dorsum with a broad callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.3 mm wide, the anther and bilobed stigma apical, the foot obsolescent.

Morona-Santiago: wet forest north of Gualaquiza, alt. 1800 m, 31 Jan. 1989, *S. Dalström & T. Höijer 1212* (Holotype: MO), C Luer illustr. 20471.

This species, known only from a wet, mossy forest in southeastern Ecuador, is characterized by a long, climbing habit with long, stout ramicauls bearing long, stout ramicauls. The leaves are broadly elliptical, and far surpassed by a loose, multiflowered raceme. The dorsal sepal and concave synsepal are multiveined; the petals are crescentiform with a thickened margin; and the lip is obtuse with a glenion and a broad callus on the dorsum.

111. **Stelis humboldtina** Luer & Hirtz, sp. nov.

Ety.: A diminutive of the generic name *Humboldtia*, referring to the small habit.

Inter species sectionis *Humboldtiae* habitu perparvo, racemo laxe pauciflоro foliis ellipticis duplo-longiore, sepalis petalisque non-distinctis.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-6 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, 20-25 mm long including a slender petiole 5-7 mm long, the blade 5-8 mm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, distichous, nearly simultaneous, few-flowered raceme, 4-5 cm long including the peduncle 2-3 cm long, from near the apex of the ramicaul; floral bracts oblique, acute, 2.5-3 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** glabrous, the dorsal sepal rose, ovate, subacute, 6 mm long, 5 mm wide, 5-veined, connate basally to the synsepal, the lateral sepals yellow, connate into an ovoid, obtuse, concave synsepal, 5 mm long, 5 mm wide, unexpanded, 6-veined; **petals** purple, transversely ovate, shallowly concave within the broadly obtuse, thickened apex, 1 mm long, 1.5 mm wide, 3-veined across a low, transverse callus; **lip** purple, thickly subtriangular, shallowly concave and broadly rounded at the apex with a slightly thickened margin, 0.5 mm long, 0.6 mm wide, 0.6 mm deep, the bar shallowly notched, the dorsum with a round, central callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.3 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: along the new road west of Macas toward Guamote, alt. 1500 m, 6 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12713* (Holotype: MO).

This species is vegetatively small for section *Humboldtia*, but the flowers are proportionately large. Three or four flowers are borne nearly simultaneously in a loose raceme about twice as long as the little leaves. The flowers do not differ remarkably from the usual pattern seen in the section. The dorsal sepal is five-veined, the petals are transverse with a thickened margin and three-veined; and the lip is rounded and shallowly concave anteriorly with a round callus on the dorsum.

112. **Stelis ingridiana** Luer & Hirtz, sp. nov.

Ety.: Named for Ingrid de Portilla, wife of José Portilla, proprietor of Ecuagenera, Gualaceo, Ecuador.

Inter species sectionis *Humboldtiae* habitu grandi, racemo disticho laxe multifloro, sepalo dorsali quam synsepalo longiore, petalis tenuibus transversis et labello ad apicem rotundo cum callo transverso protuberanti distinguitur.

Plant large, epiphytic, shortly repent, the rhizome stout, 1-1.5 cm long between ramicauls; roots slender. Ramicauls erect, stout, 14-25 cm long, enclosed by a loose, tubular sheath from below the middle, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, 17-20 cm long including a slender petiole 4-5 cm long, the blade 3-5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, distichous, many-flowered raceme, 20-30 cm long including the peduncle ca. 7 cm long, with a slender spathe ca. 1.5 cm long, at an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 2.5-4 mm long; ovary 2-3 mm long; **sepals** light yellow green, microscopically pubescent within, the dorsal sepal erect, ovate, obtuse, with the sides revolute, 8-10 mm long, 5 mm wide expanded, 5-veined, connate basally to the synsepal, the lateral sepals connate into an ovoid, concave synsepal, 5.5-7 mm long, 5-6 mm wide, 6-veined; **petals** purple, transversely triangular, thin, shallowly concave, with the apex broadly obtuse, with the margin slightly thickened, 1-1.5 mm long, 2 mm wide, 3-veined; **lip** purple, thickly subquadrate, broadly rounded at the apex, 1 mm long, 1.3 mm wide, 0.8 mm deep, the bar protuberant centrally, shortly and narrowly bifid, shallowly concave below on the anterior surface, the dorsum shallowly concave with a round callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.3 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Zamora, alt. 1200 m, cultivated by Ecuagenera, Gualaceo, 2 Feb. 2002, *A. Hirtz 8024* (Holotype: MO), C. Luer 20210. **Morona-Santiago**: near Chigüinda, alt. 1800 m, cultivated by Ecuagenera, Gualaceo, 2 Mar. 2001, *C. Luer 19843* (MO).

This large species of section *Humboldtia* is known from the orchid-rich region surrounding Zamora in southeastern Ecuador. It is characterized by stout ramicauls produced along a stout, shortly creeping rhizome. A long, loose, distichous, many-flowered raceme surpasses the large, long-petiolate leaf. The dorsal sepal with revolute sides of the gaping flower is noticeably longer than the synsepal. The transverse petals are thin and broadly obtuse. The lip with a round apex is distinguished by a prominent, protuberant, minutely cleft bar, shallowly concave below, and with a round callus on the dorsum.

113. **Stelis listrophylla** Luer & Hirtz, sp. nov.

Ety.: From the Greek *listrophyllon*, "a spade-shaped leaf," referring to the foliage.

Planta grandis caespitosa, racemo multifloro folio maximo cordato abrupte longipetiolato longiore, floribus grandibus bilabiatis, petalis magnis semilunatis et labello parvo oblique subquadrato.

Plant large, epiphytic, caespitose; roots numerous, very slender. Ramicauls erect, stout, 28-32 cm long, enclosed by a tubular sheath above the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, broadly cordate-ovate, obtuse, long-petiolate, 12-14 cm long, 9-11 cm wide, abruptly contracted into a slender petiole 3.5-4.5 cm long. **Inflorescence** an erect, congested, distichous, many-flowered raceme with several flowers open simultaneously, 8-19 cm long including the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3 mm long; pedicels 2 mm long; ovary 3 mm long; **sepals** glabrous externally, diffusely cellular-papillose within, yellow-green or rose, the dorsal sepal erect, 7 mm long, 7 mm wide, 5-veined, concave basally, the lateral sepals connate 3 mm into a broadly ovate, bifid lamina with obtuse apices, 5 mm long, 9 mm wide, 8-veined, the inner third concave and the outer thirds lightly revolute; **petals** yellow-green, semilunate, 1.5 mm long, 3 mm wide, 3-veined, with the rounded margin broadly thickened, concave below the middle; **lip** yellow-green, obliquely quadrate, 1.2 mm long, 1.2 mm wide, 0.75 mm deep, the anterior surface sloped forward above, broadly truncate, shallowly concave centrally, transversely thickened across the middle with a small glenion, the dorsum with a minutely pubescent, low, trilobed callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Pichincha: cloud forest between San Miguel de los Bancos and Mindo, alt. 2300 m, 1 Apr. 1984, *C. Luer, S. Dalström, T. Höijer & A. Hirtz 9877* (Holotype: MO); between San Juan and Chiriboga, alt. 1800-2200 m, 7 Mar. 1982, *A. Hirtz & J. Leon 221* (SEL); between Nono and Tandayapa, alt. 2100 m, 27 Dec. 1987, *U. Molau & B. Eriksen 2227* (GB).

This large species is apparently endemic in northwestern Ecuador. It is distinguished by the large, cordate leaves more than ten centimeters broad, and abruptly long-petiolate. The ramicauls are about 30 centimeters long. The many-flowered raceme surpasses the leaf. The lateral sepals are deeply connate into a broad, shortly bifid lamina. The proportionately large, overlapping, semilunate petals are three millimeters broad. The lip is small with a sloping anterior surface. A three-lobed callus is present on the dorsum.

114. **Stelis luteola** Luer & Hirtz, sp. nov.

Ety.: From the Latin *luteolus*, "light yellow," referring to the flowers.

Inter species sectionis *Humboldtiae*, habitu parvo, racemo gracili congesto secundo folio elliptico longiore, floribus parvis luteolis, sepalo dorsali ovato quinque-nervato, petalis trinervatis et labello subquadrato apice late rotundo supra tricalloso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1-2.5 cm long, enclosed by a tubular sheath, and another 1-2 at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 4-6.5 cm long including a petiole ca. 1 cm long, 1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, secund, nearly simultaneously many-flowered raceme, up to 8 cm long including the peduncle 2-3 cm long, with a spathe ca. 3 mm long, from below the apex of the ramicaul; floral bracts oblique, acute, 3 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; flowers yellow, bilabiate; **sepals** glabrous, the dorsal sepal erect, ovate, obtuse, 3.5 mm long, 3 mm wide, 5-veined, connate basally to the synsepal, the lateral sepals connate into an ovoid, concave synsepal, 2.75 mm long, 2.5 mm wide unexpanded, 3.5 mm wide expanded, 8-veined; **petals** transversely semilunate, concave, with the apex thickened, broadly obtuse, with a transverse callus, concave basally, 0.5 mm long, 1 mm wide, 3-veined; **lip** thickly subquadrate, rounded at the apex with the margin thickened, 0.5 mm long, 0.6 mm wide, 0.5 mm deep, the bar shallowly concave with a glenion, the dorsum shallowly concave with a transverse row of 3 calli, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.7 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Pastaza: north of Mera, alt. 1350 m, *C. Luer 11203* (Holotype: MO).
Napo: forest around the Bermejo oil fields north of Lumbaqui, alt. 850 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz & A. Embree 11747* (MO).

This small species occurs at moderately low altitudes on the eastern slope of the Andes of Ecuador. It is characterized by a slender, crowded, secund raceme of little, yellow flowers, longer than the elliptical leaf. The dorsal sepal is ovate and five-veined; the synsepal is deeply concave; the petals are three-veined; and the lip is thick with the apex broadly rounded, and with a three-lobed callus on the dorsum.

115. **Stelis memorialis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *memorialis*, "of a reminder," referring to the similarity to other species of sect. *Humboldtia*.

Species haec *S. globiflorae* Rchb.f. similis, sed habitu majore, inflorescentia congesta secunda, petalis brevioribus transverse ovatis, et labello triangulari differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-12 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 3-4 cm long including a petiole 0.3-0.5 cm long, the blade 1-1.2 cm wide, cuneate below into the petiole. **Inflorescence** 1-2 erect, strict, subcongested, subsecund, simultaneously several-flowered racemes, 8-10 cm long including the peduncle 3-3.5 cm long, from an annulus below the apex of the ramicaul; floral bracts tubular, obtuse, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; flowers purple, bilabiate; **sepals** glabrous, the dorsal sepal erect, ovate, obtuse, 5.5 mm long, 4.5 mm wide, 3-veined, connate basally to the synsepal for 1 mm, the lateral sepals connate into a transversely ovoid, obtuse, concave synsepal, 4 mm long, 5.5 mm wide, expanded, 6-veined; **petals** semilunate, with the apex broadly rounded, thickened across the center, concave above the base, 0.6 mm long, 1.2 mm wide, 3-veined; **lip** thickly triangular, 0.4 mm long, 0.8 mm wide, 0.6 mm deep, the anterior surface shallowly concave, the apex broadly rounded with the margin thickened, the bar prominent with a shallow glenion, with the dorsum deflexed, with a low, rounded, pubescent callus, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: Cordillera del Cutucú, new road between Mendez and Morona, alt. 950 m, 17 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, S. Ortega, A. & P. Jesup 13997* (Holotype: MO).

This small species of section *Humboldtia* is apparently endemic in lowland, eastern Ecuador. It is distinguished by the small habit with the flowers of the raceme overlapping and facing in two directions. The dorsal sepal is broadly ovate, and the synsepal is shallowly concave. The petals are broadly semilunate. The lip is triangular with the dorsum sloping backward and downward. The margin of the bar is prominent as a transverse ridge.

116. **Stelis multiflora** Luer & Hirtz, sp. nov.

Ety.: From the Latin *multiflorus*, "many-flowered," referring to the inflorescence.

Inter species sect. *Humboldtiae*, species haec grandis pluriracemosa racemis multifloris minutiflorisque folio plusminusve aequilongis, petalis tenuis concavis, et labello antice concavo distinguitur.

Plant large, epiphytic, presumably caespitose (broken at base). Ramicauls erect, slender, 15-19 cm long, enclosed by a close, tubular sheath near the middle and another at the base. **Leaf** erect, coriaceous, elliptical, subacute, 9-14 cm long including a petiole 1.5 cm long, the blade 2-2.6 cm wide, narrowly cuneate below into the petiole. **Inflorescence** a fascicle of 5-8 erect, congested, distichous, many-flowered racemes with most flowers open simultaneously, 10-13 cm long including the peduncle 1-2.5 cm long, with a spathe 1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts thin, broad, 2 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** fleshy, yellow, microscopically pubescent within, the dorsal sepal oblong, convex with recurved sides, obtuse, connate basally, 4 mm long, 1.6 mm wide, 3-veined, the lateral sepals oblique, connate midway and in apposition to the tips into a concave synsepal with recurved margins, 3.25 mm long, 3.25 mm wide, 6-veined; **petals** thin, yellow, transversely obovate, shallowly concave below the broadly obtuse, ill-defined margin, 0.6 mm long, 1 mm wide, 3-veined; **lip** yellow, thick, subtriangular, 0.6 mm long, 0.6 mm wide, 0.5 mm deep, the apex broadly rounded, concave anterior to the bar, with a minute, cleft-like glenion, the dorsum with a rounded, pubescent callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 0.6 mm wide, the anther and the stigma apical, with the stigma bilobed, the foot obsolescent.

Azuay: Cordillera de Molleturo, forest above Río Shurimal, alt. 1100 m, 27 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16185* (Holotype: MO).

Among the members of section *Humboldtia*, this species is characterized by 5-8 simultaneous, many-flowered racemes with some of the smaller flowers of the section. The racemes reach nearly as long as the narrowly elliptical leaf. The sepals are fleshy with recurved margins; the petals are thin and concave; and the lip is deeply concave anteriorly with the apex broadly rounded.

117. **Stelis neudeckeri** Luer & Dodson, sp. nov.

Ety.: Named for Tilman Neudecker of Würzburg, Germany, co-collector of this species.

Inter species sect. *Humboldtiae*, planta mediocris caespitosa ramicaulibis prolificantibus, racemo dense laxe grandiflora plurifloraque folio elliptico longiore, synsepalo concavo cum mento profundo, et labello subquadrato humili apice rotundo distinguitur.

Plant medium in size, epiphytic, dense caespitose; roots coarse slender. Ramicauls stout, erect, prolific, 4-9 cm long, enclosed by a tubular sheath near the middle and another below the middle. **Leaf** erect, coriaceous, elliptical, petiolate, acute, 5-9 cm long including the petiole 1.5 cm long, the blade 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, distichous, loosely several-flowered raceme with few flowers open simultaneously, 10-12 cm long including the peduncle 3-4 cm long, subtended by a spathe ca. 1 cm long, from below the apex of the ramicaul; floral bracts oblique, acute, 5-7 mm long; pedicels 2 mm long; ovary 2 mm long; flowers "brownish," bilabiate; **sepals** glabrous, the dorsal sepal ovate, acute, 10-13 mm long, 6-8 mm wide, with 5 primary, branching veins, connate 2 mm to the synsepal, the lateral sepals connate into a broadly ovoid, deeply concave synsepal with a mentum below the lip, 8-11 mm long, 7-11 mm wide unexpanded, multiveined; **petals** semilunate, 1.75 mm long, 2 mm wide, 3-veined, concave below the broadly rounded apex with a broad, smooth margin, concave below a transverse callus; **lip** purple, thick, subquadrate, 0.75 mm long, 1.5 mm wide, 0.9 mm deep, the apex broadly rounded, anterior surface smooth, the bar with a minute, inconspicuous glenion, the dorsum with a low, multilobed callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Esmeraldas: northwest of Cristal northwest of Lita, alt. 1450 m, 29 Dec. 1990, *C.H. Dodson, T. Neudecker & H. Volles 18611* (Holotype: MO), C. Luer illustr. 20470.

This species from northwestern Ecuador is characterized by a densely caespitose habit with frequently prolific ramicauls. The stout, loose, several-flowered raceme exceeds the leaf. The flowers are large with a deeply concave synsepal. The margins of the crescent-shaped petals are broad and smooth. The lip is shallow with the anterior surface smooth, nearly flat, and broadly rounded.

118. **Stelis pedanocaulon** Luer & Hirtz, sp. nov.

Ety.: From the Greek *pedanocaulos*, "short-stemmed," referring to the abbreviated ramicaul.

Species haec *S. purpureae* (Ruiz & Pav.) Willd., affinis, sed ramicaulibus abbreviatis, sepalis minute pubescentibus obtusis, petalis supra columnam superpositis et labelli glenione multiminore differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2.5-3 cm long, enclosed by a tubular sheath from below the middle and another sheath above the base. **Leaf** erect, coriaceous, elliptical-obovate, obtuse, petiolate, 10-11 cm long including the petiole ca. 1.5 cm long, the blade 2.3-2.8 cm wide, contracted below into the petiole. **Inflorescence** an erect, subcongested, distichous, many-flowered raceme with several flowers open simultaneously, up to 25 cm long including the peduncle 10-15 cm long, with a spathe 1 cm long, from the apex of the ramicaul; floral bracts oblique, acute, with revolute margins, 5 mm long; pedicels 2 mm long; ovary 3 mm long; flowers resupinate, bilabiate; **sepals** purple-black, microscopically pubescent, the dorsal sepal ovate, obtuse, convex, 8.5 mm long, 5.5 mm wide, 5-veined, connate 3 mm to the synsepal, the lateral sepals white within, connate into an ovoid, obtuse, concave synsepal, 7.5 mm long, 7.5 mm wide, 8-veined; **petals** cellular-glandular, purple-black, thickly semilunate, overlapping above the column, 1.25 mm long, 2 mm wide, 3-veined, sharply concave below the transverse callus above the base, the rounded margin broadly thickened; **lip** purple-black, transversely oblong-triangular, 1 mm long, 1.5 mm wide, 1 mm deep, the apex broadly rounded, the bar shallowly concave with a narrow glenion, the dorsum with 3 obscure, rounded calli, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: near Pangui, alt. 1200 m, cultivated by Ecuagenera, Gualaceo, 8 July 2002, *A. Hirtz 8329* (Holotype: MO), C. Luer illustr. 20221.

This species of southeast Ecuador is related to the frequent and variable *S. purpurea*, but it is readily distinguished from the latter by the very short ramicauls, about a fourth as long as the large, obovate leaf they bear. The flowers are purple-black with white on the interior of the synsepal. The dorsal sepal is convex while the synsepal is ovate and concave. The central apparatus is proportionately small with thick petals overlapping above the column. The lip is transverse and broadly rounded with a narrow glenion and with three obscure calli on the dorsum.

119. **Stelis propagans** Luer & Hirtz, sp. nov.

Ety.: From the Latin *propagans*, "propagating," referring to the prolific ramicauls.

Inter species sect. *Humboldtiae*, planta grandis prolificans, racemo dense disticho folio longiore, synsepalo concavo cum mento profundo, et labello subquadrato humili apice triangulari acuto differt.

Plant medium in size to large, epiphytic, scandent; roots slender. Ramicauls stout, erect, prolific, 6-14 cm long, enclosed by a tubular sheath near the middle that is shed early, and another at the base. **Leaf** erect, coriaceous, elliptical, petiolate, acute, 6-7 cm long including the petiole 1.5-2 cm long, the blade 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, distichous, densely many-flowered raceme with most flowers open simultaneously, 12-16 cm long including the peduncle 2-3 cm long, subtended by a spathe ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1 mm long; flowers bilabiate; **sepals** glabrous, the dorsal sepal purple, erect, elliptical, obtuse, 4 mm long, 2.5 mm wide, incompletely 5-veined, connate to the synsepal for 0.5 mm, the lateral sepals yellow-green, connate into a broadly ovate, deeply concave synsepal with a mentum below the lip, 2.5 mm long, 3 mm wide unexpanded, 6-veined; **petals** purple, transversely semilunate, 0.6 mm long, 1 mm wide, concave below the broadly rounded apex with the margin thickened and flattened, concave toward the base; **lip** purple, thick, subquadrate, 0.9 mm long, 0.8 mm wide, 0.4 mm deep, the apex triangular, acute, concave, the bar with a glenion, the dorsum with a low, lobed callus, the base truncate, hinged to the base of the column; **column** stout, 0.9 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Bolívar: west of Guaranda toward Balzapamba, alt. 2000 m, 26 Mar. 1984, *C. Luer, A. Hirtz, S. Dalström, T. Höijer & J. Kuijt 9732* (Holotype: MO).

Vegetatively, this large, prolific species from the western slope of central Ecuador is similar to *S. bicornis*. The crowded, distichous, many-flowered racemes exceed the leaves. The dorsal sepal is longer than the synsepal, which is concave with a deep mentum. The petals are semilunate with a thickened margin. The body of the lip is shallowly subquadrate with a short, acute, triangular apex.

120. **Stelis scaphoglossa** Luer & Hirtz, sp. nov.

Ety.: From the Greek *scaphoslossa*, "hollowed out tongue," referring to the concave lip.

Inter species sect. *Humboldtiae*, planta mediocris, racemo dense disticho folio longiore, synsepalo infra medium concavo cum mento lato, et labello subquadrato ad centrum profunde concavo marginibus anticis angulatis distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 5-8 cm long, enclosed by a tubular sheath on the middle third, and another at the base. **Leaf** erect, coriaceous, narrowly elliptical-oblong, obtuse, petiolate, 7-8.5 cm long including the petiole ca. 1 cm long, the blade 1-1.4 cm wide, cuneate below into the petiole. **Inflorescence** an erect, distichous, densely many-flowered raceme with many flowers open simultaneously, 8-12 cm long including the peduncle 2 cm long, subtended by a spathe 9-12 mm long, from below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 3-4 mm long; pedicels 1 mm long; ovary 2 mm long; flowers bilabiate, light yellow; **sepals** glabrous, the dorsal sepal erect, ovate, subacute or obtuse, 4 mm long, 3 mm wide, 3-veined, connate basally to the synsepal, the lateral sepals connate to near the middle into a broadly ovate, concave synsepal with a broad mentum below the lip, 2.5 mm long, each 2.5 mm wide, 3-veined; **petals** transversely semilunate, 1 mm long, 1.5 mm wide, concave below the broadly rounded apex with the margin thickened and convex, concave toward the base; **lip** thick, subquadrate, 1 mm long, 1 mm wide, 1 mm deep, deeply concave centrally into the bar, the apex triangular, obtuse, decurved, the dorsum with a broad, low, pubescent callus at the base, the base truncate, hinged to the base of the column; **column** stout, 1.2 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Cordillera del Condor, east of Los Encuentros, alt. 1650 m, 18 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13443* (Holotype: MO).

The unusual lip of this species is somewhat similar to that of *S. fissurata* from northwesternmost Ecuador. The anterior margins of both species are obtusely angled to either side of a deeply concave center of the bar. The raceme of *S. scaphoglossa* is densely flowered with proportionately large floral bracts. The lateral sepals are connate to near the middle into a synsepal that is broadly concave below the middle. The petals are held closely around the column and lip so that none of the interior below the convex margins is visible.

121. **Stelis surrogatilabia** Luer & Hirtz, sp. nov.

Ety.: From the Latin *surrogatilabia*, "with surrogate lip," referring to the adaptation of the synsepal.

Inter species sect. *Humboldtiae*, planta mediocris, racemo laxefloro folio elliptico petiolato longiore, sepalo dorsali anguste ovato, synsepalo cum area ad basim infra labellum convexa papillosa, petalis transversis planis, et labello minutissimo distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-4 cm long, with a tubular sheath from below the middle and another 2 sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute, long-petiolate, 6-8 cm long including the petiole 1.5-2 cm long, the blade 1.3-1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, loose, distichous, many-flowered raceme with several flowers open simultaneously, to 18 cm long including the peduncle 6-7 cm long, with a thin spathe ca. 5 mm long, at an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 4-5 mm long; pedicels 3 mm long; ovary 3 mm long; **sepals** light yellow-green, the dorsal sepal narrowly ovate, subacute, 11 mm long, 4 mm wide, 5-veined, connate to the synsepal for 1 mm, the lateral sepals connate into a shallowly concave, ovate, obtuse, shortly bifid synsepal, 9 mm long, 7 mm wide, 8-veined, with a triangular, convex, papillose area marked with red-purple, toward the base below the lip; **petals** light yellow-green, transversely oblong, shallowly concave, broadly rounded on the margin, minimally thickened, 0.75 mm long, 1.25 mm wide, 3-veined; **lip** light yellow-green, shallowly oblong, the apex broadly rounded, 0.6 mm long, 0.6 mm wide, 0.3 mm deep, the bar protuberant, bilobed with a proportionately large glenion, the dorsum slightly convex, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.25 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Zamora, alt. 1200 m, cultivated by Ecuagenera, Gualaceo, 2 Feb. 2002, *A. Hirtz 8032* (Holotype: MO), C. Luer illustr. 20212.

This species of section *Humboldtia* is known from the orchid-rich region surrounding Zamora in southeastern Ecuador. It is medium in size and characterized

by a loose, distichous flowered raceme that surpasses a long-petiolate leaf. The flowers are gaping and light green, but a convex, triangular patch of red-purple papillae within the shallowly concave synsepal is conspicuous beneath the proportionately small, central apparatus. The lip is so small that it is not easily seen hidden beneath the rostellum unless it is searched for. It appears that this portion of the synsepal has taken over the role of enticing a pollinator.

122. **Stelis tarda** Luer & Hirtz, sp. nov.

Ety.: Fram the Latin *tardus*, "slow," in allusion to the slow succession of flowers.

Planta parva mediocrisve caespitosa, folio elliptico racemo lente successivifloro subaequilongo gemmis fructibusque simultanei, synsepalo leviter concavo, petalis transversis tenuibus et labello transverse ovoideo apice rotundo tenui callo centro erecto distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-4 cm long, with a tubular sheath from near the middle, and another 1-2 sheaths below the middle. **Leaf** erect, coriaceous, elliptical, subacute to acute, petiolate, 4-6 cm long including a petiole 1-1.5 cm long, the blade 0.8-1.3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subcongested, distichous, slowly successive, several-flowered raceme, 4-7 cm long including the peduncle 1-1.5 cm long, with a spathe 0.5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, tubular, acute, 3-4 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** glabrous, yellow, the dorsal sepal broadly ovate, obtuse, 4 mm long, 4 mm wide, 3-veined, connate below the middle to the synsepal, the lateral sepals connate to near the apex into a transversely ovoid, shallowly concave, bifid synsepal, 3 mm long, 5.5 mm wide, 6-veined; **petals** yellow, thin, transversely ovate, 1 mm long, 1.5 mm wide, 3-veined, shallowly concave, the apex broadly rounded without a thickened margin; **lip** transversely ovoid, 0.75 mm long, 1.2 mm wide, 0.75 mm deep, concave within the broadly rounded apex with a thin margin, the bar tall with a longitudinal glenion, the dorsum with a rounded callus, the base truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Sucumbíos: El Mirador, alt. 3600 m, Aug. 1990, *A. Hirtz, X. Hirtz, J. del Hierro & F. Sarmiento 4947* (Holotype: MO); C. Luer illustr. 20435a.

This species occurs at a very high altitude in northern Ecuador. It is distinguished by a several-flowered raceme with one, or occasionally two flowers open simultaneously in slow succession while capsules are ripening below and buds continue to be formed above. For section *Humboldtia*, the synsepal is shallowly concave; the transverse petals are thin; and the round, apical margin of the lip is thin and concave. The bar is tall with a narrow glenion.

123. **Stelis teaguei** Luer & Hirtz, sp. nov.

Ety.: Named for Walter Teague of San Francisco, CA, co-collector of this species.

Species haec *S. maximae* Lindl. affinis, sed folio longipetiolato multiminore, racemis folio aequilongis et floribus grandibus sed minoribus differt.

Plant medium or large in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 9-12 cm long, enclosed by a tubular sheath from below the middle, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to acute, petiolate, 10-13 cm long including a petiole 2.5-3.5 cm long, the blade 1.5-2.5 cm wide, cuneate below into the petiole. **Inflorescence** 1-3 erect, subcongested, distichous, many-flowered racemes, most flowers open simultaneously, 8-10 cm long including the peduncle 1-2 cm long, with a spathe 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, tubular, 4-5 mm long; pedicels 3 mm long; ovary 3 mm long; **sepals** glabrous, the dorsal sepal purple, broadly ovate, obtuse, 13 mm long, 8.5 mm wide, incompletely 7-veined, connate basally to the synsepal for 2 mm, the lateral sepals translucent with purple veins, connate into a transversely ovoid, concave synsepal, 7 mm long, 12 mm wide unexpanded, 10-veined, with a broad mentum; **petals** purple, thick, transversely ovate, 2 mm long, 2.5 mm wide, 3-veined, the apex broadly rounded with a thick margin, concave basally below a transverse callus; **lip** thickly subquadrate, 1 mm long, 1.9 mm wide, 1 mm deep, the anterior surface obtusely triangular, with the apex shallowly concave above a broad, marginal thickening with the apex incurved, the bar with a small, marginal glenion, the dorsum with a thick, rounded, microscopically rugose callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 2 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: forest east of Sigsig, alt. 2750 m, 15 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13333* (Holotype: MO).

This species, one of the largest of the section *Humboldtia*, is apparently restricted to one area of southeastern Ecuador. It is related to the even larger-flowered *M. maxima*, but vegetatively it is distinguished by smaller, long-petiolate leaves that are not surpassed by the racemes. The synsepal is transversely concave with a broad mentum below the central apparatus.

124. **Stelis tenuifolia** Luer & Hirtz, sp. nov.

Ety.: From the Latin *tenuifolius*, "slender-leaved," referring to the blades of the leaves.

Species haec *S. purpureae* (Ruiz & Pav.) Willd. affinis, sed habitu floribusque multiminoribus, foliis gracillimis, et sepalo dorsali quinquenervato differt.

Plant small, epiphytic, densely caespitose to ascending; roots slender. Ramicauls erect, slender, 3-5 cm long, enclosed by a tubular sheath from near the middle, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, narrowly linear-elliptical, acute, subpetiolate, 6-8 cm long including a petiole ca. 1 cm long, the blade 0.5 cm wide, narrowed below into the petiole. **Inflorescence** 1-3 erect, subdense, distichous, nearly simultaneously several-flowered racemes, 6-10 cm long including the peduncle 1-2 cm long, with a spathe ca. 4 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 4-5 mm long; pedicels 1.5 mm long; ovary 1 mm long; flowers purple, bilabiate; **sepals** glabrous, the dorsal sepal erect, broadly ovate, obtuse, 5 mm long, 5 mm wide, 5-veined, connate basally to the synsepal for 2 mm, the lateral sepals connate into a broadly ovate, obtuse, minutely bifid, concave synsepal, 4.5 mm long, 5.5 mm wide expanded, 8-veined; **petals** transversely semilunate, shallowly concave basally, thickened across the middle, with the apex broadly rounded, flat on the thickened margin, 1 mm long, 1.5 mm wide, 3-veined; **lip** thickly subtriangular, obtuse with the margin thickened, 0.75 mm long, 0.75 mm wide, 0.5 mm deep, the anterior surface with a large, deep glenion, the bar notched, the dorsum shallowly concave with a low, 3-lobed callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.75 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Esmeraldas: wet forest west of Lita, alt. 750 m, 18 Jan. 1987, *C. Luer, J. Luer, C. Dodson, A. Hirtz & D. Benzing 12356* (Holotype: MO).

This species, a small relative of the frequent and variable *S. purpurea*, is characterized by the small habit with narrowly linear leaves five millimeters wide. A several-flowered raceme of small flowers surpasses the leaves. The dorsal sepal is five-veined; the petals are transversely lunate; and the lip is small, subtriangular with a deep glenion.

125. **Stelis thoerleae** Luer, sp. nov.

Ety.: Named for Lisa Thoerle, of Barnesville, MD, who submitted this species for identification.

Species haec *S. flaccae* Rchb.f. affinis, sed foliis crassissimis late ellipticis abrupte petiolatis, synsepalo profundissime saccato differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2-3 cm long, enclosed by 2 loose tubular sheaths. **Leaf** erect, thickly coriaceous, broadly elliptical, rounded at the apex, rounded below, abruptly petiolate, 4-6 cm long including the petiole 0.5-0.7 cm long, the blade 2.2-3 cm wide. **Inflorescence** an erect, loose, several-flowered raceme with 3-4 flowers open simultaneously, 6-8 cm long including the peduncle 2-2.5 cm long, from an annulus at the apex of the ramicaul; floral bracts tubular, oblique, 2.5 mm long; pedicels 1.5 mm long; ovary 2 mm long; **sepals** purple, glabrous, the dorsal sepal ovate, obtuse, 8.5 mm long, 8 mm wide, 5-veined, connate to the synsepal for 3 mm, the lateral sepals completely connate into a deeply saccate, ovoid synsepal, 6 mm long, 10 mm wide, 8 mm deep, 10-veined; **petals** purple, transversely semilunate, 1 mm long, 2 mm wide, 3-veined, with the apex broadly rounded and broadly thickened, shallowly concave below the apical margin; **lip** purple, subspherical, the apex broadly rounded with a thick margin, 1 mm long, 1 mm wide, 0.75 mm deep, the center filled with an erect, protuberant bar above the margin, the dorsum with a broad, low callus, the base truncate, firmly hinged to the base of the column; **column** stout, 1 mm long, 1.2 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: without locality, but near the Peruvian border, collected by Dennis D'Alessandro, cultivated by Lisa Thoerle in Barnesville, MD, Dec. 2002, *C. Luer 20423* (Holotype: MO).

This species from southernmost Ecuador is distinct with very thick, broadly elliptical leaves with rounded apex and abruptly petiolate from the rounded base. The raceme of several, comparatively large, purple flowers surpasses the leaf. The synsepal is deeply saccate with the central apparatus on the back wall within the cavity of the synsepal. The central apparatus is much like that of *S. flacca*. The erect, protuberant bar, shallowly concave anteriorly and with a low callus on the dorsum (the back surface in this case), is extremely similar.

126. **Stelis venosa** Luer & Endara, sp. nov.

Ety.: From the Latin *venosus*, "full of veins," referring to the sepals.

Species haec *S. patinariae* Luer & Hirtz affinis, sed habitu floribusque multimajoribus, sepalis multivenosis et sepalis lateralibus semiconnatis differt.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 20-25 cm long, enclosed by a loose, tubular sheath above the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 13-14 cm long including the petiole 2 cm long, the blade 2.5-3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, subcongested, distichous, many-flowered raceme with many flowers open simultaneously, 20-30 cm long including the peduncle ca. 6 cm long, with a spathe 1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 10 mm long below to 5 mm long above; pedicels 5 mm long; ovary 2 mm long; flowers green, suffused with purple; **sepals** glabrous, the dorsal sepal ovate, subacute, 11 mm long, 7.5 mm wide, 11-veined with 7 primary veins, connate basally to the synsepal, the lateral sepals semi connate into an ovate synsepal, concave below the middle, with obtuse apices, 10 mm long, each 7 mm wide, 11-veined; **petals** semi-lunate, with the ends overlapping above the column, 2 mm long, 2.5 mm wide, 3-veined, concave below the thickened, broadly rounded apex, and concave basally below the transverse callus; **lip** transversely oblong-triangular, 1 mm long, 2 mm wide, 1 mm deep, the apex broadly rounded, the bar shallowly concave with a small glenion, the dorsum with 3 rounded calli, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 2 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Cañar: north slope of Cerro del Gatel, above Rivera, alt. 2600-2700 m, 2 Feb. 1988, *E. Molau, B. Eriksen & M. Fredriksen 2874* (Holotype: AAU; Isotype: GB), C. Luer illustr. 20509.

This species is little more than a large-flowered *S. patinaria* with many and branching sepals, and semiconnate lateral sepals that are concave below the middle. Although *S. patinaria* is known to be variable vegetatively, the huge size of the multiveined sepals on the collection from Cañar, as well as a concave, semiconnate synsepal indicate separation from *S. patinaria*, bridging the gap into section *Humboldtia*.

127. **Stelis venusta** Luer & Hirtz, sp. nov.

Ety.: From the Latin *venustus*, "beautiful, elegant," referring to the display of fine flowers.

Species haec *S. avicipi* Lindl. affinis, sed floribus planis non-resupinatis multimajori differt.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-23 cm long, enclosed by a close, tubular sheath along the middle third, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, narrowly ovate, subacute, petiolate, 5-13 cm long including a petiole 1.5-2 cm long, the blade 1.5-2.7 cm wide, cuneate below into the petiole. **Inflorescence** 1-2 erect, distichous, subdensely many-flowered racemes, with many flowers open simultaneously in opposite ranks, 10-19 cm long including the peduncle ca. 3 cm long, with a spathe 1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, dilated, undulate, 4 mm long, 4 mm wide; pedicels 3 mm long; ovary 2.5 mm long; flowers purple, more or less flat; **sepals** glabrous, the dorsal sepal broadly ovate-triangular, subacute to obtuse, 7 mm long, 8.5 mm wide, 5-veined with a faint accessory pair, connate basally to the synsepal for 3 mm, the lateral sepals connate into a broadly ovate synsepal, shallowly concave centrally with the sides recurved, 5 mm long, 9 mm wide, 8-veined; **petals** broadly semilunate-triangular, 1.5 mm long, 2.2 mm wide, 3-veined, the apex broadly rounded with the margin thick and flat with sharp margins, concave basally below a sharply margined transverse callus; **lip** thickly subtriangular, shallowly concave anteriorly above the narrowly rounded apex, 1.2 mm long, 1.5 mm wide, 1 mm deep, the bar thin with a glenion anteriorly, and with the dorsum deflexed acutely, with a low, subtrilobed callous, the base truncate, hinged to the base of the column; **column** stout, 1.2 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: along new road between Macas and Guamote, alt. 2300 m, 2 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19615* (Holotype: MO).
Loja: between Yangana and Valladolid, *J.E. Madsen 85670* (AAU, SEL).

This rare and elegant species, apparently restricted to southeastern Ecuador is most closely related to the widely distributed and relatively frequent *S. aviceps*. It differs from the latter by thrice larger, flat flowers. The broadly ovate synsepal is shallowly concave centrally with margins of both sides recurved. The petals are large with the flat margins sharply defined. The dorsum of the lip is acutely deflexed so that the bar is thin between the dorsum and anterior surface, creating a narrowly triangular profile.

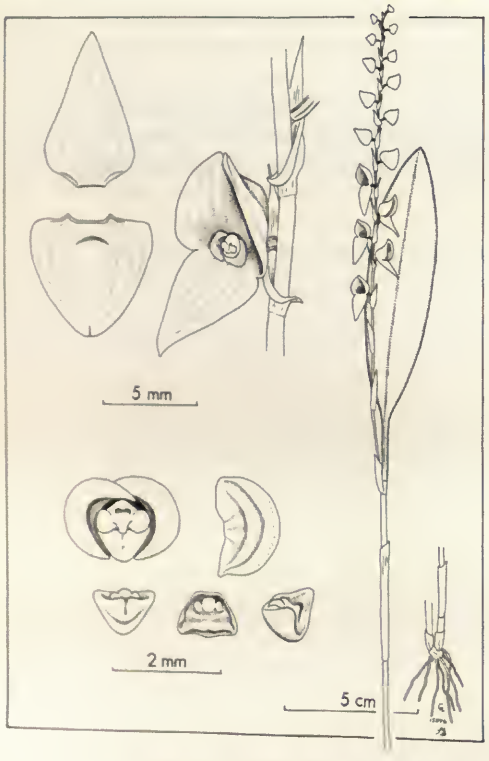

Fig. 105. Stelis alpina

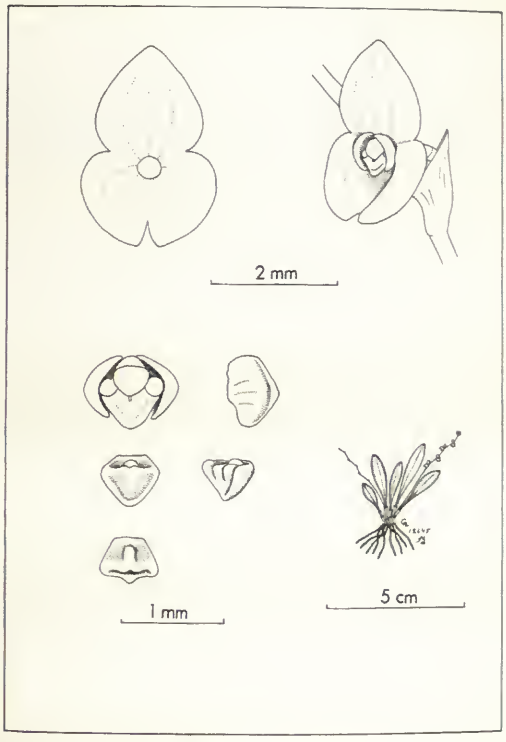

Fig. 106. Stelis buccella

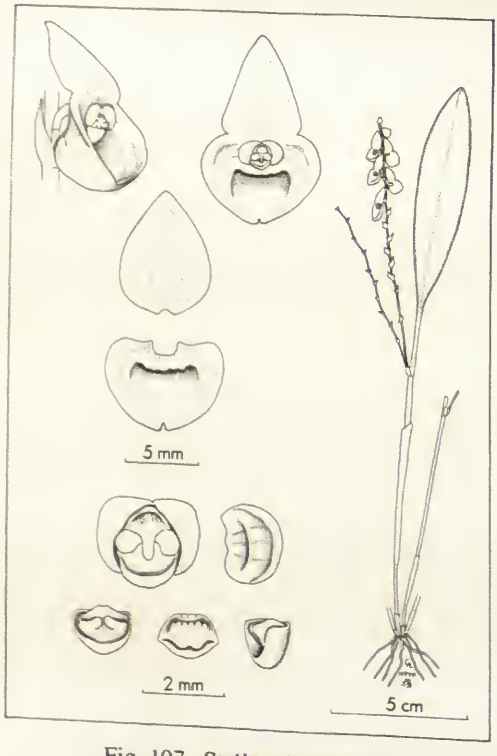

Fig. 107. Stelis cajanumae

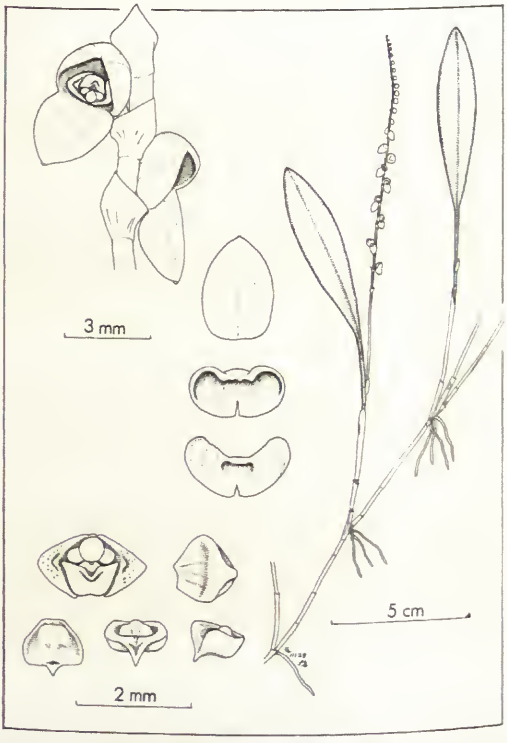

Fig. 108. Stelis corniculata

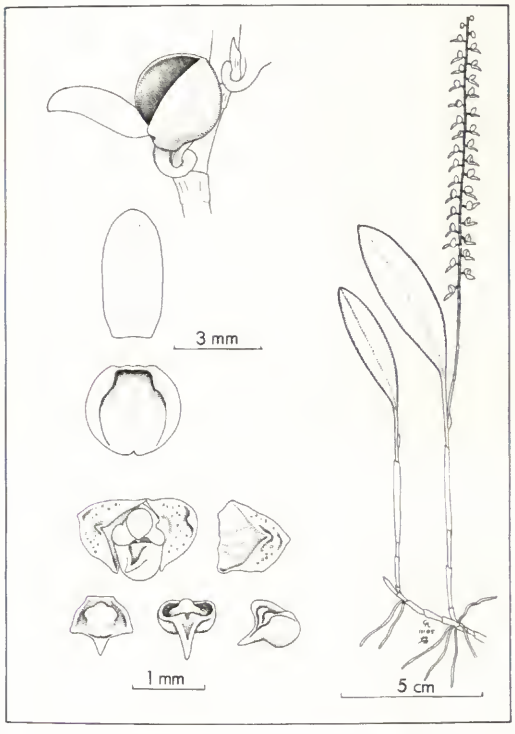

Fig. 108a. Stelis corniculata

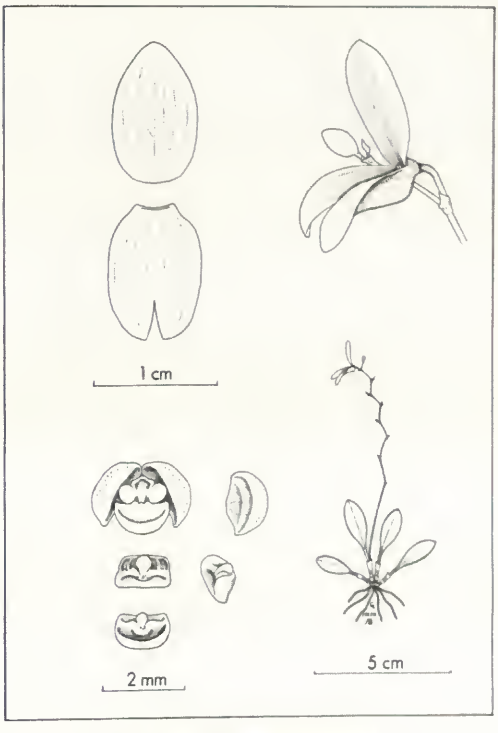

Fig. 109. Stelis delhierroi

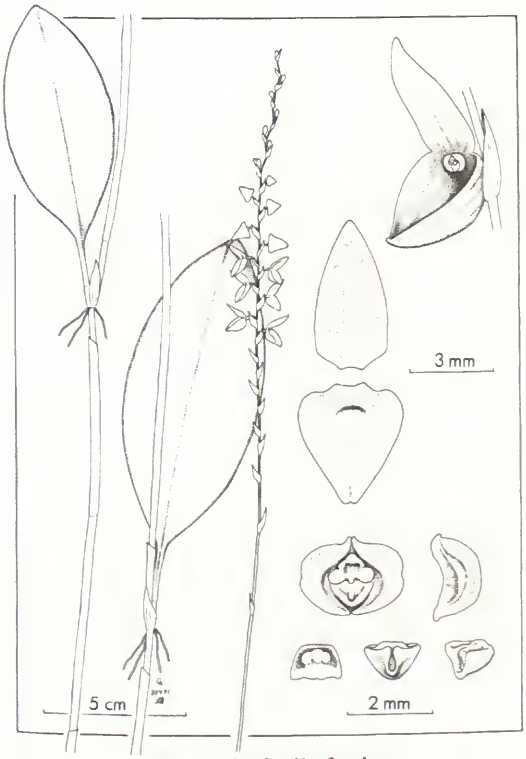

Fig. 110. Stelis fortis

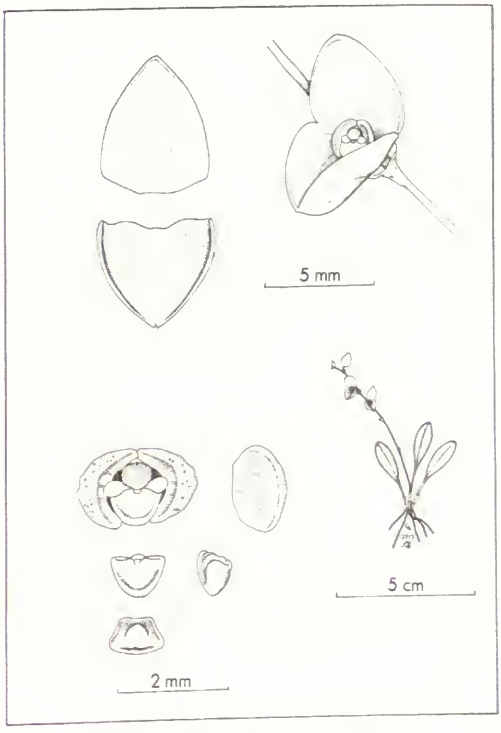

Fig. 111. Stelis humboldtina

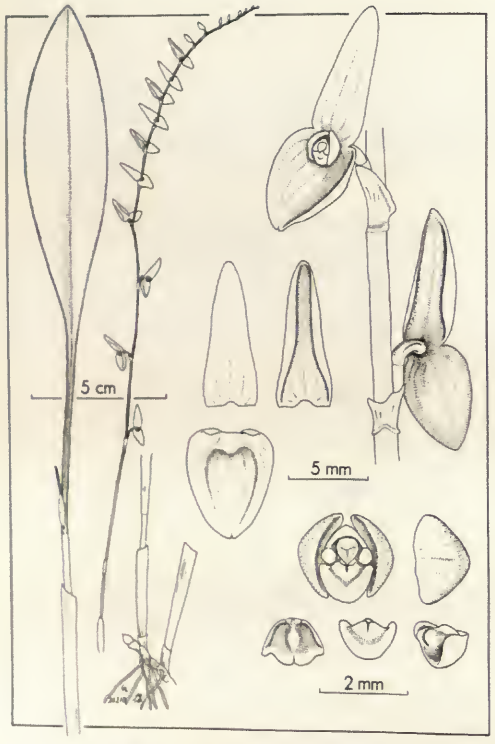

Fig. 112. Stelis ingridiana

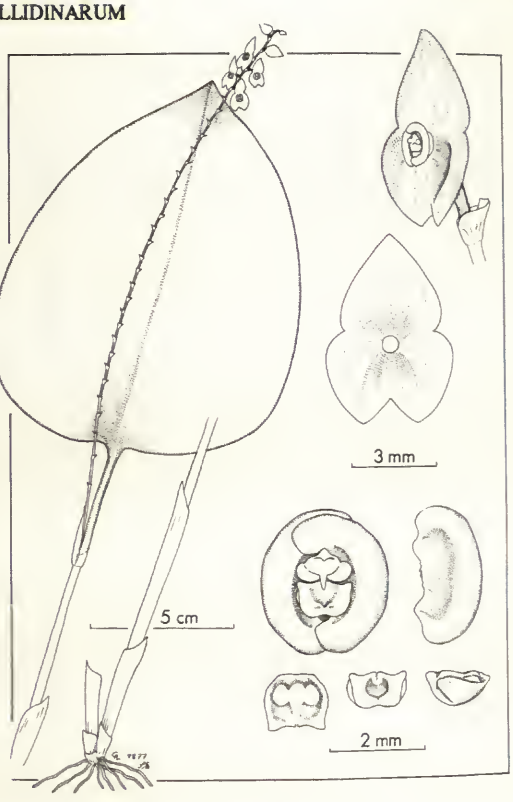

Fig. 113. Stelis listrophylla

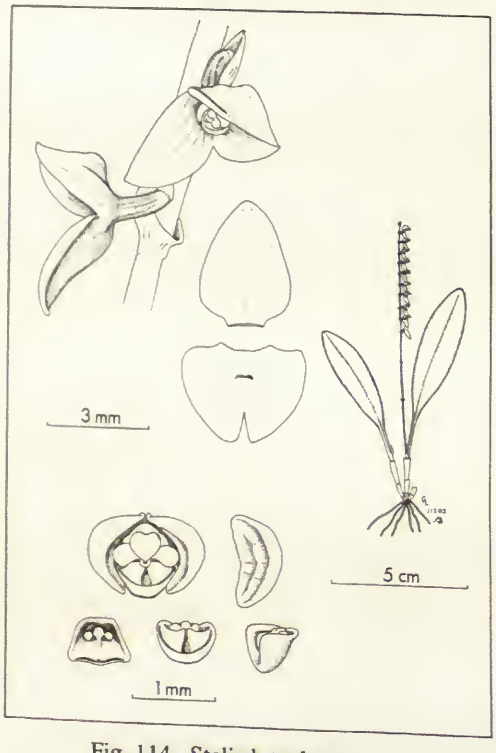

Fig. 114. Stelis luteola

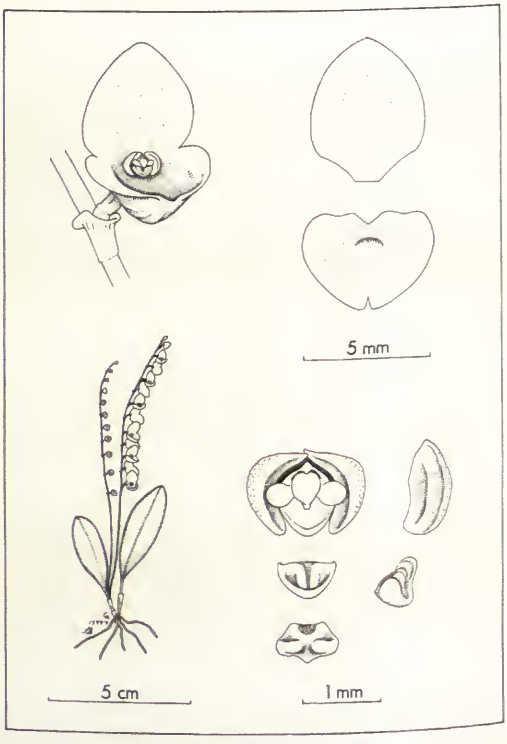

Fig. 115. Stelis memorialis

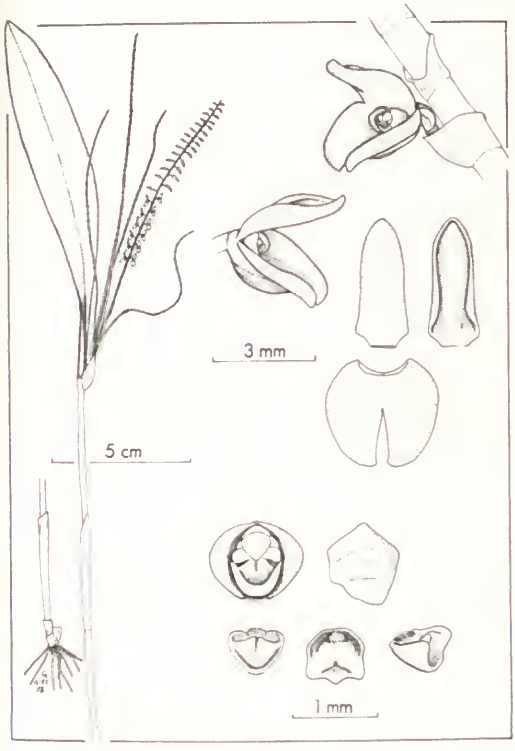

Fig. 116. Stelis multiflora

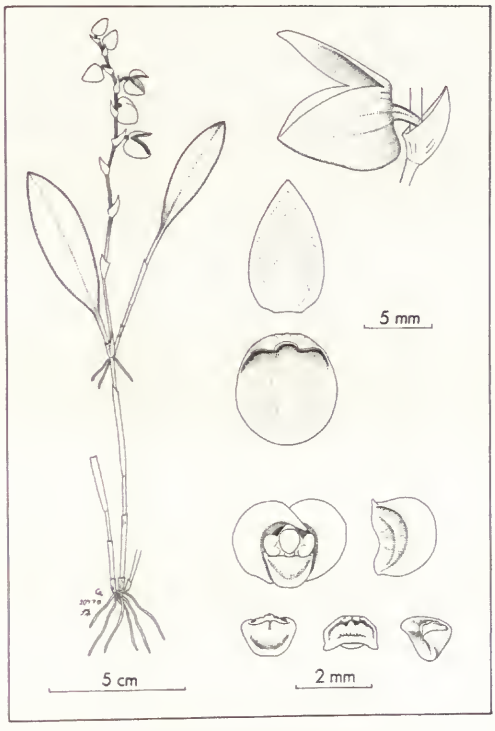

Fig. 117. Stelis neudeckeri

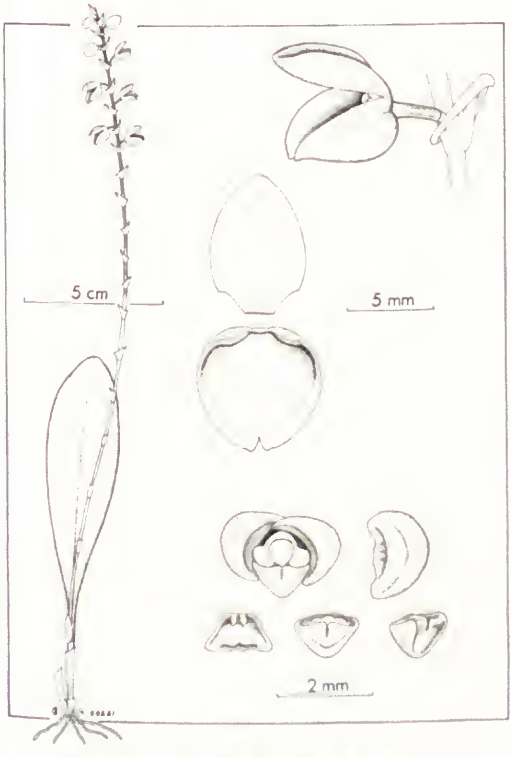

Fig. 118. Stelis pedanocaulon

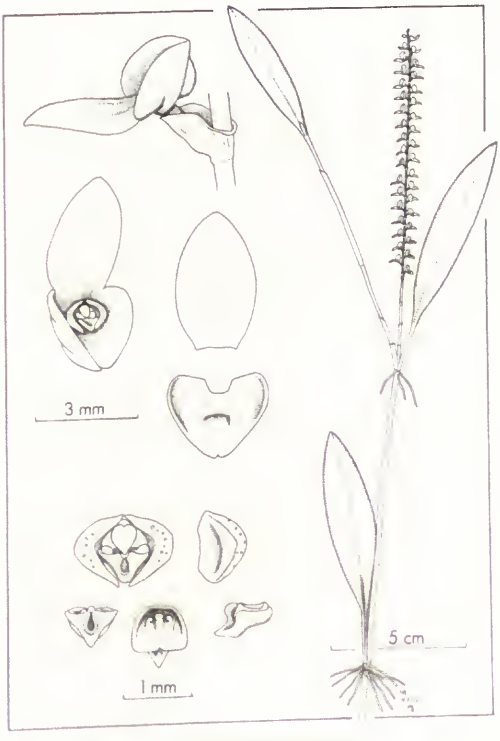

Fig. 119. Stelis propagans

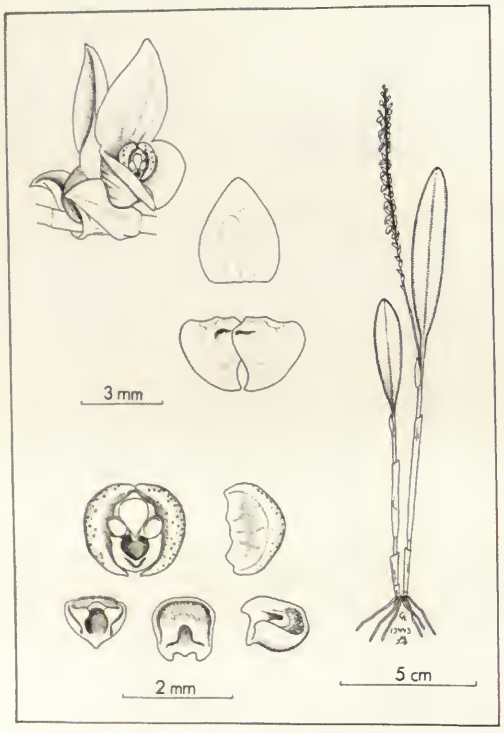

Fig. 120. Stelis scaphoglossa

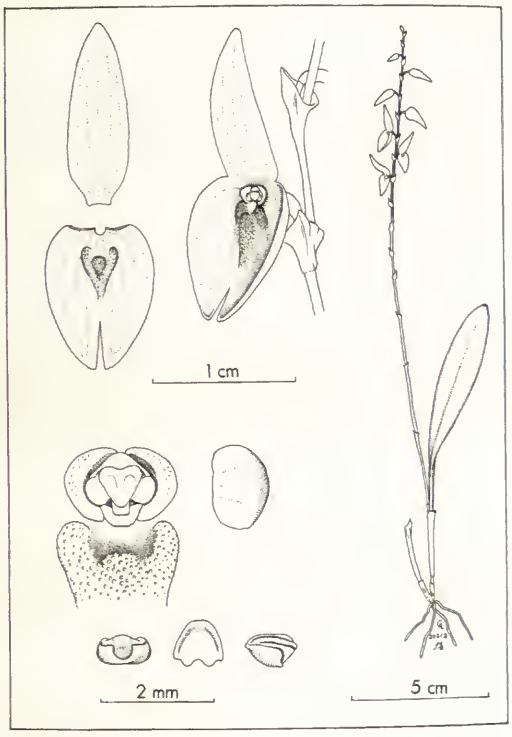

Fig. 121. Stelis surrogatilabia

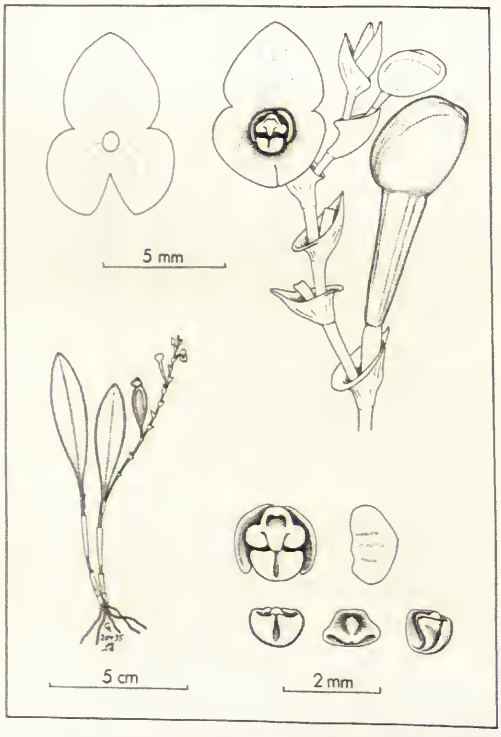

Fig. 122. Stelis tarda

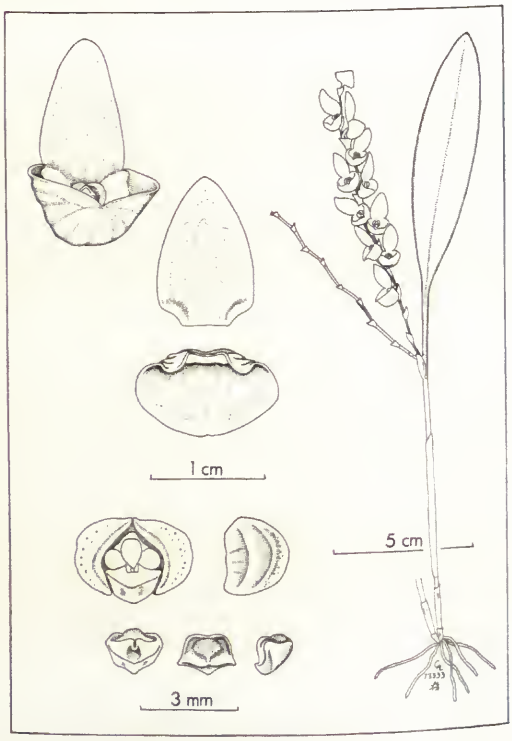

Fig. 123. Stelis teaguei

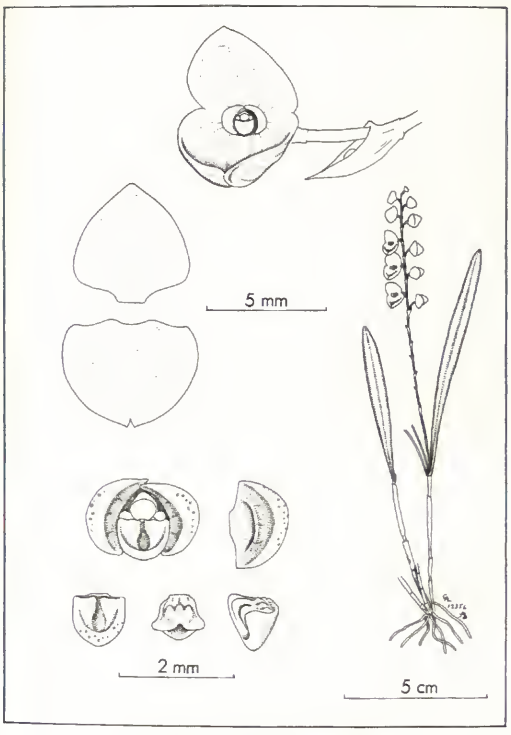

Fig. 124. Stelis tenuifolia

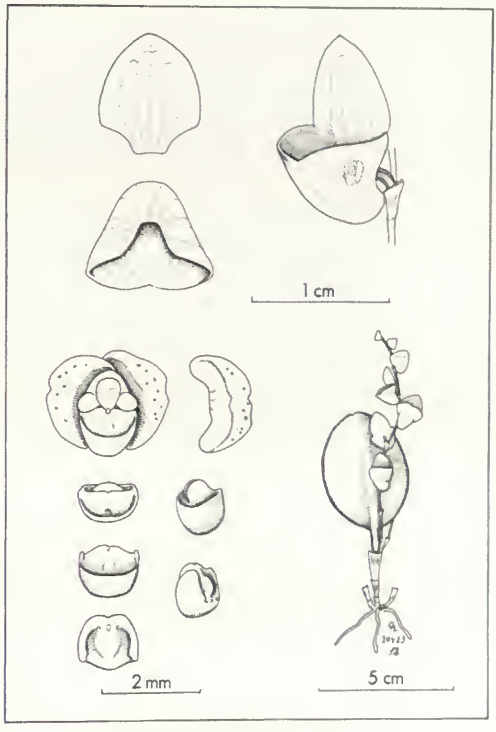

Fig. 125. Stelis thoerleae

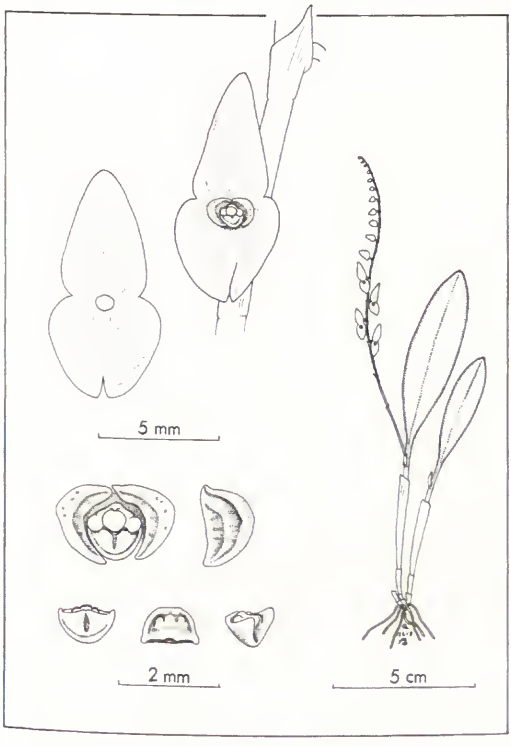

Fig. 126. Stelis venosa

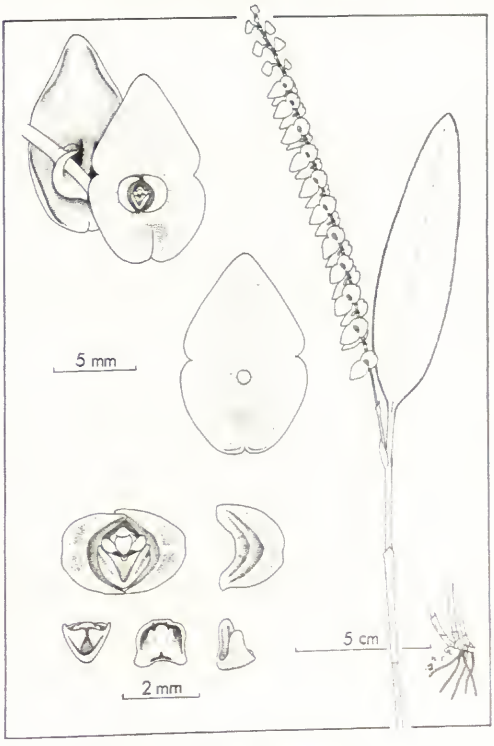

Fig. 127. Stelis venusta

Section **STELIS**

128. **Stelis acaroi** Luer & Hirtz, sp. nov.

Ety.: Named for Ivan Acaro of Gualaceo, Ecuador, co-collector of this species and many others.

Planta grandis, racemo disticho sublaxe multifloro, spatha grandi, sepalis ovatis obtusis supra medium papillosis marginibus recurvis, petalis semiorbicularibus, labello subdiscoideo leviter concavo.

Plant large, epiphytic, presumably caespitose; roots slender. Ramicauls erect, stout, 7-15 cm long, enclosed by a loose, tubular sheath from below the middle, and another 2-3 sheaths at the base. **Leaf** erect, coriaceous, elliptical, sessile, subacute, 8-11 cm long, 2.5 cm wide, narrowly cuneate below to the base. **Inflorescence** an erect, sublax, secund, many-flowered raceme, 15 cm or more long including the peduncle ca. 8 cm long, with a spathe 2 cm long, at the base of the leaf; floral bracts short, obtuse, 1.5 mm long; pedicels 1 mm long; ovary 3 mm long; **sepals** expanded, light green, suffused with purple leaving the apices green, papillose above the middle, ovate with recurved sides, obtuse, the dorsal sepal 6 mm long, 3.25 mm wide unexpanded, 6-veined, connate basally to the laterals, the lateral sepals 6 mm long, 3 mm wide, 4-veined; **petals** dark purple, transversely semicircular, thin, thickened along the rounded margin, shallowly concave, 1 mm long, 1.75 mm wide, 3-veined; **lip** dark purple, subdiscoid, broadly rounded at the apex, 0.5 mm long, 1.3 mm wide, 1.3 mm deep, the bar minutely notched, shallowly concave below on the anterior surface, the dorsum shallowly concave with an obscure callous, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1.3 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Zamora, alt. 1200 m, cultivated by Ecuagenera, Gualaceo, 2 Feb. 2002, *A. Hirtz 8029* (Holotype: MO), C. Luer illustr. 20211; between Mendez and Morona, alt. <1000 m, 19 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4127* (MO).

Vegetatively, this large species resembles many species of *Pleurothallis*. No doubt a part of their DNA analyses will be similar. It is known from the orchid-rich region surrounding Zamora in southeastern Ecuador. It is characterized by stout ramicauls, a sessile, elliptical leaf with a two-centimeter-long spathe at its base. The sublax, secund raceme surpasses the leaf. The pedicels and floral bracts are remarkably short. The sepals are papillose above the middle with recurved margins; the petals are smooth and semiorbicular; and the lip is shallowly suborbicular.

129. **Stelis acrisepala** Luer & Hirtz, sp. nov.

Ety.: From the Greek *acrisepalus*, "with pointed sepals," referring to all three sepals.

Species haec *S. schomburgkii* Fawc. & Rendle, affinis, sed sepalis glabri quasi liberis anguste ovatis acutis duplolongioribus et labello oblongo apice breviter apiculato differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-6 cm long, enclosed by a tubular sheath from below the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 5-8 cm long including an indistinct petiole ca. 1.5 cm long, 0.6-0.8 cm wide, narrowed below into the base. **Inflorescence** an erect, congested, distichous, many-flowered raceme with most flowers open simultaneously, 10-13 cm long including the peduncle ca. 3 cm long, subtended by a slender spathe 6-8 mm long, from an annulus below the apex of the ramicaul; floral bracts tubular, acute, 3.5 mm long; pedicels 1 mm long; ovary 1.5 mm long; flowers yellow, **sepals** similar, glabrous, free nearly to the base, narrowly ovate, acute, the dorsal sepal 4.5 mm long, 2 mm wide, 3-veined, the lateral sepals held forward, 4.25 mm long, 1.6 mm wide; **petals** transversely oblong, shallowly concave, without a transverse callus, 0.5 mm long, 1 mm wide, 3-veined, the apex broadly truncate with the margin thickened; **lip** thick, suboblong, 1 mm long, 0.6 mm wide, 0.5 mm deep, concave anteriorly with the apex subtruncate, sharply short-apiculate, the bar with a cleft glenion, the dorsum with low calli, densely short-pubescent at the base, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.8 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma transversely bilobed.

Loja: near the pass along the new road north of Loja, alt. 2700 m, 2 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12589* (Holotype: MO).

This species is closely allied to the widely distributed *S. schomburgkii* of the *S. aprica*-alliance. It differs from them by the twice longer, narrowly ovate and acute sepals, three-veined petals, and proportionately longer lip.

130. **Stelis acuminata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *acuminatus*, "acuminate," referring to the sepals.

Planta mediocris caespitosa, racemo congesto multifloro folio anguste elliptico longiore, sepalis carnosis ovatis acutis leviter acuminatis, petalis trinervis et labello subquadrato late obtuso distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-6 cm long, enclosed by a tubular sheath from below the middle and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 7-9 cm long including a petiole ca. 1 cm long, the blade 1-1.4 cm wide, cuneate below into the petiole. **Inflorescence** an erect, strict, slender, congested, subsecund, simultaneously many-flowered raceme, 12 cm long including the peduncle 4-6 cm long, from a slender spathe ca. 6 mm long, below the apex of the ramicaul; floral bracts infundibular, acuminate, 3.5-4 mm long; pedicels 1 mm long; ovary 2 mm long; **sepals** yellow, glabrous, fleshy, thickest toward the apex, ovate, acute, slightly acuminate, connate basally, the dorsal sepal 3 mm long, 2.25 mm wide, 3-veined, the lateral sepals oblique, 2.5 mm long, 2.25 mm wide, 3-veined; **petals** purple, transversely oblong, transversely obtuse, shallowly concave, with the edge thickened, 0.75 mm long, 0.9 mm wide, 3-veined; **lip** purple, subquadrate, 0.6 mm long, 0.6 mm wide, 0.5 mm deep, shallowly concave anteriorly, with the apex transversely obtuse, the bar thick, with a large glenion, the dorsum with a center callus flanked by a smaller one on each side, the base truncate, hinged to the base of the column; **column** stout, 0.6 mm long, 0.6 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Azuay: above Cumbe, alt. 3000 m, 1 Mar. 2001, *C. Luer, J. Luer, A. Hirtz, E. Sanchez & L. Suin 19763* (Holotype: MO).

This species, apparently endemic at a high altitude in southern Ecuador, is another in the group of species related to *S. aprica* and *S. schomburgkii*. From them it is distinguished by the fleshy sepals that are ovate and slightly but distinctly acuminate at the apex. The petals are broadly oblong and three-veined. The lip is subquadrate with an obtuse apex and a thick bar with a relatively large glenion.

131. **Stelis aernbyae** Luer & Dalström, sp. nov.

Ety.: Named for Lena Årnby, co-collector of this species.

Planta mediocris, racemo laxifloro folio elliptico longiore, sepalis obtusis inaequalibus multivenosis, sepalo dorsali quam lateralibus duplolongiore, petalis crescentiformibus transverse carinosis, labello subquadrato supra tricalloso.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-6.5 cm long, enclosed by a tubular sheath from below the middle, and another 2-3 sheaths below the middle. **Leaf** erect, coriaceous, elliptical, obtuse, petiolate, 8-9 cm long, 1.5-2.5 cm wide, narrowly cuneate below to the petiole. **Inflorescence** an erect, loose, several-flowered raceme, 10-12 cm long including the peduncle ca. 5 cm long, with a spathe 1 cm long, at the base of the leaf; floral bracts short, tubular, acute, 4-5 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** expanded, unequal, green, glabrous, the dorsal sepal ovate, obtuse, 5 mm long, 4.5 mm wide, 6-veined, connate basally to the laterals, the lateral sepals broadly ovate, oblique, obtuse, 3 mm long, 4.5 mm wide, 5-veined; **petals** purple, transversely semicircular, thickened and flat along the broadly rounded margin, shallowly concave within the margin, deeply concave basally below a thick transverse callus, 1 mm long, 1.5 mm wide, 3-veined; **lip** purple, subquadrate, shallowly concave within a broadly rounded apex with a thick margin, 0.75 mm long, 1.25 mm wide, 1 mm deep, the bar minutely with a small glenion, the dorsum sloping downward, concave with 3 calli, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.3 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Napo: wet forest between Archidona and Coca, alt. 1000 m, 17 Feb. 1990, *S. Dalström & L. Årnby 1364* (Holotype: MO), C. Luer illustr. 20472.

Vegetatively, this species from the relatively low land of eastern Ecuador is not distinctive. It is distinguished by a loosely flowered raceme that exceeds the elliptical leaf. The sepals are multiveined and conspicuously unequal in size, the laterals being markedly oblique and twice shorter. The petals are thick with a sharp, transverse callus. The lip is subquadrate with a thickly rounded apex and with the dorsum sloping acutely downward.

132. **Stelis alternans** Luer & Hirtz, sp. nov.

Ety.: From the Latin *alternans*, "alternating," referring to the flowers in the raceme.

Planta parva caespitosa, racemo stricto congesto floribus alternantibus folio anguste lineari-elliptico longiore, sepalis ovatis obtusis minutissime papillosis, sepalo dorsali sepalis lateralibus majoribus, petalis transverse oblongis planis, et labello subdiscoideo.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, 1.5-2 cm long, enclosed by a tubular sheath, and 2 others at the base. **Leaf** erect, coriaceous, narrowly linear-elliptical, acute, 6-8 cm long including an ill-defined petiole ca. 1 cm long, the blade 0.7-0.8 cm wide, narrowly cuneate below into the base. **Inflorescence** an erect, congested, distichous, mostly simultaneously many-flowered raceme with the flowers alternating, facing the same direction, 11-12 cm long including the peduncle 5-6 cm long, with a slender spathe 0.8 cm long at the base of the leaf; floral bracts oblique, obtuse, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; all floral parts purple, **sepals** cellular-papillose within, ovate, obtuse, connate 1 mm basally, the dorsal sepal 2.5 mm long, 2.3 mm wide, 3-veined, the lateral sepals oblique, 1.5 mm long, 2.3 mm wide, 3-veined; **petals** thin, transversely oblong with rounded ends, the apex transverse, 0.6 mm long, 1.2 mm wide, 3-veined, shallowly concave, the apical margin minimally thickened; **lip** thick, shallowly subdiscoid, 0.4 mm long, 0.8 mm wide, 0.8 mm deep, smooth anteriorly with the apical margin rounded, the bar with a proportionately large glenion, the dorsum flat, variably pubescent, the base broadly hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: Gualaquiza, alt. 1300 m, cultivated by Ecuagenera, 5 July 2002, *A. Hirtz 8356* (Holotype: MO), C. Luer illustr. 20213; Limón, cultivated by Ecuagenera, 19 Apr. 2001, *A. Hirtz 7565* (MO), C. Luer illustr. 20468.

This dainty species from southeastern Ecuador is recognized by narrow leaves borne by much shorter ramicauls, and surpassed by a slender, congested raceme of purple flowers. Each flower is held 45° from the rachis in two evenly spaced rows with all the flowers facing in the same direction. The dorsal sepal is significantly larger than the oblique laterals. The petals are transverse and shallowly concave, and the lip is shallowly discoid with the base sparsely to densely pubescent.

133. **Stelis bermejoënsis** Luer & Hirtz, sp. nov.

Ety.: Named for the Bermejo Oil Fields where this species was collected.

Planta mediocris, racemo laxe subflexuoso successivifloro folio multilongiore, sepalis glabris late ovatis obtusis 5-nervis, petalis transverse ovatis marginibus incrassatis, et labello crasso subquadrato apice rotundo minutissime apiculato.

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 2-3 cm long, enclosed by loose, tubular sheaths, and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 3.5-6 cm long, 0.7-1.1 cm wide, narrowly cuneate below into a petiole ca. 1 cm long. **Inflorescence** an erect, subflexuous, successively and distantly several-flowered raceme, 10-17 cm long including the peduncle 6-7 cm long, with 1-2 flowers open simultaneously, from an annulus below the apex of the ramicaul; floral bracts acute, oblique, 3 mm long; pedicels 1.5 mm long; ovary 2 mm long; flowers yellow; **sepals** expanded, glabrous, broadly ovate, obtuse, subequal, deeply connate, the dorsal sepal 4 mm long, 5 mm wide, 3-veined, branching to 5-veined, the lateral sepals oblique, 3.5 mm long, 4.5 mm wide, 3-veined, branching to 4-veined; **petals** transversely semilunate, irregularly thickened on the rounded margin, 1 mm long, 2 mm wide, concave below the broadly thickened center; **lip** purple, thickly subquadrate, 1 mm long, 1.3 mm wide, 0.6 mm deep, the apex broadly rounded with a minute apiculum, shallowly concave anteriorly with a superficial glenion, the dorsum pubescent, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.3 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Napo: Bermejo Oil Fields, north of Lumbaqui, alt. 850 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11470* (Holotype: MO).

This species from lowland eastern Ecuador is characterized by ramicauls and elliptical leaves about equal in length. The long, distantly flowered raceme bears one or two flowers successively. The sepals are glabrous and transversely ovate with the outer veins branching to create five for the dorsal sepal and four for the laterals. The petals are transverse with a broadly thickened margin. The lip is thick with a microscopic apiculum on the round apex.

134. **Stelis bicolor** Luer & Hirtz, sp. nov.

Ety.: From the Latin *bicolor*, "of two colors," referring to yellow sepals and purple petals and lip.

Planta parva, racemo densissime multifloro folio multilongiore, sepalis atroaureis glandulosis late ovatis, petalis purpureis suborbicularibus leviter concavis, labello purpureo subquadrato apice concavo obtuso.

Plant small, epiphytic, densely caespitose; roots fasciculate, slender. Ramicauls erect, stout, 2-3.5 cm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, 3-5 cm long, 1-1.8 cm wide, narrowly cuneate below into a subpetiolate base. **Inflorescence** an erect, strict, distichous, many-flowered raceme, 13-17 cm long including the peduncle 3-6 cm long, with numerous flowers open simultaneously, with a slender spathe 1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts inflated, acute, oblique, 3-4 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** dark yellow, expanded, glandular-cellular within, broadly ovate, obtuse, subequal, connate basally, the dorsal sepal 2 mm long, 2.5 mm wide, 3-veined, the lateral sepals oblique, 1.75 mm long, 2 mm wide, 3-veined; **petals** purple, transversely suborbicular, the apex broadly rounded, slightly thickened, 0.8 mm long, 1 mm wide, 3-veined, concave; **lip** purple, subquadrate, 0.8 mm long, 0.9 mm wide, 0.5 mm deep, the apex broadly rounded with a broad apiculum, shallowly concave anteriorly with a superficial glenion, the dorsum featureless, the base broadly truncate, hinged to the base of the column; **column** stout, 0.8 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Loja: dirt road west of Saraguro, alt. 3700 m, 11 July 2002, *A. Hirtz, Ximena & Nicole Hirtz 8420* (Holotype: MO), C. Luer illustr. 20203.

This species occurs in semi-arid mountains at a high altitude in southeastern Ecuador. It is characterized by short ramicauls; twice longer, subsessile, elliptical leaves; and a much longer, congested inflorescence with dark yellow sepals and purple petals and lip. The sepals are broadly ovate and obtuse, the petals are shallowly rounded, and the lip is concave anteriorly with a low, broad apiculum.

136. **Stelis brachyrachis** Luer & Hirtz, sp. nov.

Ety.: From the Greek *brachyrachis*, "short rachis," referring to the short raceme.

Planta parva, racemo laxo paucifloro grandibracteato foliis breviore, sepalis late ovatis ciliatis, et labello subrotundo supra medium concavo.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, stout, 1.5-3.5 cm long, enclosed by 2 loose, tubular sheaths, with another at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 4-8 cm long, 1-1.5 cm wide, cuneate below into a petiole 1.5-3 cm long. **Inflorescence** an erect, slightly flexuous, distichous, successively few-flowered raceme, 3-5 cm long including the peduncle ca. 1 cm long, with 1-2 flowers open simultaneously, with a slender spathe 0.5 cm long, from an annulus below the apex of the ramicaul; floral bracts proportionately large, infundibular, oblique, acute, 5 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** purple-brown below the middle, green above the middle, expanded, ciliate, pubescent only near the margins, broadly ovate, obtuse, connate basally, the dorsal sepal 5 mm long, 5.5 mm wide, 5-veined, the lateral sepals oblique, 4 mm long, 4.5 mm wide, 5-veined; **petals** purple with white edge, transversely suboblong, the apex broadly rounded, slightly thickened on the edge, 1 mm long, 1.75 mm wide, 3-veined, shallowly concave; **lip** rose, suborbicular, 0.6 mm long, 1.3 mm wide, 1.3 mm deep, the apex broadly rounded with a thin margin, shallowly concave anteriorly with a superficial glenion, the dorsum featureless but pubescent at the angles, the base broadly truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: new road to Guamote west of Mascas, alt. 2300 m, 2 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19610* (Holotype: MO).

This species is apparently endemic on the eastern slope of the Andes of central Ecuador. It is characterized by short ramicauls; twice longer, elliptical leaves; and a slightly shorter, loosely few-flowered raceme. The floral bracts are large and conspicuous; the much shorter peduncle bears the flower over the margin. The sepals are broadly ovate and ciliate; the petals are wide and thin; and the lip is concave within the rounded apical margin.

136. **Stelis calantha** Luer & Hirtz, sp. nov.

Ety.: From the Greek *calanthos*, "pretty flower," referring to the pretty, little flower.

Planta parva caesptiosa, racemo congesto folio elliptico longiore, sepalis late ovatis subaequalibus, petalis crassis cum callo transverso, et labello parvo obtuso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 8-15 mm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute, 1.5-4 cm long including a petiole 5-12 mm long, the blade 5-8 mm wide, gradually narrowed below into the petiole. **Inflorescence** an erect, slightly flexuous, subdense, simultaneously several-flowered raceme 3-4.5 cm long including the peduncle 1-2 cm long, from an annulus below the apex of the ramicaul; floral bracts acute, oblique, 2 mm long; pedicels 1.25 mm long; ovary 1.5 mm long; **sepals** dull purple, glabrous externally, cellular-glandular within, broadly ovate, obtuse, 3-veined, connate basally, the dorsal sepal 3 mm long, 3.5 mm wide, the lateral sepals 2.5 mm long, 3 mm wide; **petals** yellow, hemispherical, markedly thickened and broadly rounded at the apex, concave below a distinct, transverse callus, 1 mm long, 1.25 mm wide, 3-veined; **lip** thick, subquadrate, 0.75 mm long, 0.9 mm wide, 0.5 mm deep, shallowly concave anteriorly with the apex rounded, the bar thick with a small glenion, the dorsum densely short-pubescent above the base, the base truncate, hinged to an obsolescent column-foot; **column** stout, 0.8 mm long, 1 mm wide, with the anther and the bilobed stigma apical.

Zamora-Chinchipe: Cordillera del Condor, east of Los Encuentros, alt. 1600 m, 4 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12624* (Holotype: MO).
Morona-Santiago: new road from Mendez to Morona, alt. <1000 m, 19 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4143* (MO); east of Sinai north of Macas, alt. 1000 m, 12 May 2000, *S. Dalström, R. Burian & L. Jost 2447* (MO).

This little species, apparently restricted to southeastern Ecuador, is distinguished by elliptical leaves longer than the ramicauls that bear them, and a congested, subflexuous raceme of simultaneous flowers that only shortly surpasses the leaf. The broadly ovate sepals are dull purple, and the petals and lip are yellow. The petals are thick with a distinct, transverse callus, and the lip is shallowly concave and obtuse with the dorsal callus pubescent.

137. **Stelis calolemma** Luer & Hirtz, sp. nov.

Ety.: From the Greek *calolemma*, "pretty bract," referring to the conspicuous floral bracts.

Species haec *S. argentatae* Lindl. affinis, sed habitu minore, racemo flexuoso grandibracteato folio anguste elliptico longiore, et labello profunde concavo margine tenui integro differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5-7 cm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute to acute, 5-6.5 cm long including a petiole 1-1.5 cm long, the blade 1 cm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, flexuous, several- to many-flowered raceme with most flowers open simultaneously, 16 cm long including the peduncle 6 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 8 mm long below to 5 mm long toward the apex; pedicels 5 mm long; ovary 2 mm long; flowers light yellow-green; **sepals** expanded, pubescent within, connate below the middle, broadly ovate, obtuse, 3-veined, the dorsal sepal 4.75 mm long, 4.75 mm wide, the lateral sepals 4 mm long, 4.5 mm wide; **petals** transversely obovate, shallowly concave, 1.5 mm long, 1.9 mm wide, 3-veined, the apex broadly rounded with the margin thickened, without a transverse callus; **lip** thick, transversely subquadrate, 1.75 mm long, 2 mm wide, 1.5 mm deep, deeply concave inside the thin, rounded apical margin, the bar with a subconical, marginal callus, the dorsum flat, shortly pubescent, broadly truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 2 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: collected near Chigüinda, cultivated at Ecuagenera, 5 Mar. 2001, *C. Luer 19736* (Holotype: MO).

This species, apparently endemic in southeastern Ecuador, is apparently related to the widely distributed *S. argentata*, but it differs from the latter by a smaller habit, narrowly elliptical leaves, and a flexuous raceme with large, prominent floral bracts. The petals are without a transverse callus, and the lip is deeply concave below a central, conical callus, and with the anterior margin thin and smooth.

138. **Stelis calyptrata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *calyptratus*, "calpytrate," referring to the sepaline cup filled with the central apparatus (the petals, column and lip).

Planta parva caespitosa, racemo subflexuoso multifloro foliis angustissime ellipticis breviore, floribus minutissimis, sepalis late ovatis obtusis minutissime pubescentibus, petalis trinervis transversis, et labello apice rotundo apiculato distinguitur.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 2-2.5 cm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, narrowly linear-elliptic, acute, 3-5 cm long, 3 mm wide, gradually narrowed below to the base. **Inflorescence** an erect, sublax, subflexuous, simultaneously several- to many-flowered raceme to 3.5 cm long including the peduncle ca. 5 mm long, from below the apex of the ramicaul; floral bracts oblique, acute, 1-1.5 mm long; pedicels 1-1.5 mm long; ovary 1.5 mm long; flowers minute, yellow; **sepals** glabrous externally, microscopically short-pubescent within, broadly ovate, obtuse, incompletely 3-veined, connate to near the middle into a cup filled with the central apparatus, the dorsal sepal 1 mm long, 1.2 mm wide, the lateral sepals 0.9 mm long, 1 mm wide; **petals** transversely ovate, shallowly concave, the apex thickened along the margin of the broadly rounded apex, 0.6 mm long, 1 mm wide, faintly 3-veined; **lip** thick, subdiscoid, 0.6 mm long, 0.5 mm wide, 0.3 mm deep, the apex broadly rounded, minutely apiculate, convex medially with a longitudinal glenion, the base pubescent, truncate, hinged to the obsolescent column-foot; **column** stout, 0.75 mm long, 0.5 mm wide, with the anther and minute, bilobed stigma apical.

Napo: Bermejo Oil Fields, north of Lumbaqui, alt. 850 m, 9 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11725* (Holotype: MO).

This small species from lowland eastern Ecuador is characterized by densely caespitose ramicauls and narrowly linear leaves that bear shorter subflexuous racemes. The flowers are among the tiniest of the genus. The sepals appear to be single-veined, but accompanying veins are seen at the base. The sepals are connate into a broad and deep cup that is filled with the transverse petals, column, and lip. The petals are faintly three-veined. The lip is discoid and apiculate, reminiscent of *S. guianensis* and *S. argentata.*

139. **Stelis capitata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *capitatus*, "capitate," referring to the pubescence.

Planta perparva caespitosa, racemo subflexuoso multifloro foliis anguste ellipticis multilongiore, sepalis ovatis obtusis breviter pubescentibus trichomatibus capitatis, petalis tenuibus uninervis subquadratis, et labello subquadrato distinguitur.

Plant very small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 5-8 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute to acute, petiolate, 15-23 mm long including the petiole ca. 5 mm long, 3-4 mm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, subflexuous, simultaneously several- to many-flowered raceme to 5 cm long including the peduncle 1.5-2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1 mm long; pedicels 1 mm long; ovary 1 mm long; flowers minute, yellow-green; **sepals** glabrous externally, densely and shortly pubescent with the hairs capitate, ovate, obtuse, incompletely 3-veined, connate basally, the dorsal sepal 1.3 mm long, 1.3 mm wide, the lateral sepals 1.2 mm long, 1.2 mm wide; **petals** thin, subquadrate, shallowly concave, broadly truncate at the slightly thickened apex, 1 mm long, 1 mm wide, 1-veined; **lip** thick, subquadrate, 0.8 mm long, 1 mm wide, 0.8 mm deep, very shallowly concave anteriorly within the broadly obtuse, apical margin, the bar with a narrow glenion, extending into a long-pubescent callus on the dorsum, the base truncate, hinged to the obsolescent column-foot; **column** stout, 1 mm long, 1 mm wide, with the anther and bilobed stigma apical.

Morona-Santiago: Valle de Calagras, alt. 1500 m, 17 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13410* (Holotype: MO).

This tiny species, apparently endemic in southern Ecuador, is characterized by a densely caespitose habit, and narrowly elliptical leaves surpassed by a simultaneously many-flowered raceme of minute, yellow-green flowers. The sepals are broadly ovate with a dense pubescence of short, capitate hairs. The petals are thin and single-veined, and the lip is subquadrate with a tuft of long hairs on the dorsum.

140. **Stelis caroliae** Luer, sp. nov.

Named for Carol Lindberg who collected and cultivated this species.

Planta parva caespitosa, racemo gracili stricto foliis anguste ellipticis subacutis longiore, sepalis glabris ovatis marginibus revolutis, petalis late obovatis concavis apicibus late obtusis incrassatis et labello ovoideo callo crasso fissurato distinguitur.

Plant small, epiphytic, caespitose; roots filiform. Ramicauls erect, slender, 2.5-3 cm long, enclosed by 2 loose, tubular sheaths and another at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 8-9 cm long including an indistinct petiole ca. 1 cm long, the blade 1-1.2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, strict, secund, many-flowered raceme, with many flowers open simultaneously, loosely flowered below, congested above, 12 cm long including the peduncle ca. 4 cm long, from below the apex of the ramicaul, with a vestigial spathe; floral bracts oblique, obtuse, 1-1.5 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; **sepals** light green, glabrous, ovate, with recurved margins, subacute to obtuse, similar, connate basally, the dorsal sepal 2.75 mm long, 1.6 mm wide, 3-veined, the lateral sepals 2.25 mm long, 1.5 mm wide, 3-veined; **petals** green, broadly obovate, concave below the broadly obtuse, thickened apex, irregular margin, 0.5 mm long, 0.5 mm wide, vein not visible; **lip** purple-brown, thickly subovoid, 0.5 mm long, 0.6 mm wide, 0.5 mm deep, the apex obtuse, the bar thick, tall, deeply cleft, the dorsum rounded, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Napo: Río Pastaza, La Cruz, downstream from Misahualli, alt. 400 m, collected by C. Lindberg and A. Suarez, flowered in cultivation, 29 Mar. 1984, *C. Lindberg 107* (Holotype: MO), C. Luer illustr. 9785.

This little species, known only from the original collection, was collected at a low altitude along the Río Napo. It is distinguished by a small, caespitose habit with narrowly elliptical leaves borne by shorter ramicauls with loose sheaths. The small-flowered inflorescence is secund and exceeds the leaf. The sepals are ovate with the laterals held more or less forward; the petals are tiny and concave below the thickened apex; and a protruding, cleft bar fills the center of the lip.

141. **Stelis cavernosa** Luer & Hirtz, sp. nov.

Ety.: From the Latin *cavernosus*, "cavernous," referring to the lip.

Species haec *S. lindenii* Lindl. affinis, sed racemo ad basim bracteoso et labelli glenio grandi profundo cum basi descendenti differt.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 12-13 cm long, with a loose, tubular sheath above the middle and another 2 sheaths at the base. **Leaf** erect, coriaceous, elliptical-ovate, obtuse, petiolate, 10-14 cm long including the petiole 1.5-2 cm long, the blade 3-4.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, strict, congested, distichous, many-flowered raceme with several flowers open simultaneously, 18-22 cm long including the peduncle 4-5 cm long, with a spathe 1.5-2 cm long, at an annulus below the apex of the ramicaul; floral bracts conspicuous, oblique, acute, 6 mm long below, 4 mm long above; pedicels 2 mm long; ovary 2 mm long; **sepals** similar, fleshy, glabrous externally, cellular-glandular within, light green, transversely ovate, broadly obtuse, connate to near the middle, the dorsal sepal 4 mm long, 5 mm wide, 5-veined, the lateral sepals 3.8 mm long, 4.5 mm wide, 5-veined; **petals** green, transversely ovate, 1.1 mm long, 1.6 m wide, 3-veined, with the apex broadly rounded and thickened, concave basally below a transverse thickening; **lip** green, thickly subquadrate, the apex broadly rounded with a thick margin, 1.2 mm long, 1.25 mm wide, 0.75 mm deep, the anterior surface concave with a large, deeply concave glenion, the dorsum shallowly concave, the base truncate, hinged to the base of the column; **column** stout, 1.25 mm long, 1.25 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: new road between Loja and Zamora, alt. 2250 m, 22 May 1988, *C. Luer, A. Hirtz et al. 13583* (Holotype: MO).
Morona-Santiago: Cordillera del Condor, east of Chuchumbletza, alt. 1650 m, 21 May 1988, *C. Luer, A. Hirtz et al. 13524* (MO).

This uncommon species is closely allied to the host of variations and relatives of the frequent *S. lindenii*. From them it is distinguished by large floral bracts that begin near the base, and by the lip. The glenion is deep and large, occupying much of the anterior surface of the bar, and the dorsum of the lip slopes downward without a significant callus.

142. **Stelis ciliatissima** Luer & Hirtz, sp. nov.

From the Latin *ciliatissimus*, "very ciliate," referring to the densely ciliate petals and lip.

Planta perparva racemis pluribus multifloris folio elliptico duplolongioribus, sepalis latissime ovatis obtusis, petalis uninervis flabellatis densissime ciliatis, et labello ovoideo obtuso, dense ciliatis callo dorsali cum glenione grandi continuo distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-5 mm long, enclosed by a 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute, petiolate, 15-20 mm long including the petiole ca. 5 mm long, the blade 4-5 mm wide, cuneate below into the petiole. **Inflorescence** 2-5 erect, subflexuous, distichous, many-flowered racemes, with few flowers open simultaneously, 20-35 mm long including the peduncle 15-20 mm long; floral bracts oblique, acute, 1 mm long; pedicels 0.6 mm long; ovary 1 mm long; **sepals** dull white, glabrous externally, connate below but near the middle, broadly ovate, obtuse, the dorsal sepal 1.5 mm long, 1.8 mm wide, 3-veined, the lateral sepals oblique, 1.2 mm long, 1.5 mm wide; **petals** purple, flabellate-semiorbicular, broadly rounded, 0.5 mm long, 0.75 mm wide, 1-veined, minutely spiculate-pubescent with the margin densely ciliate, concave at the base; **lip** purple, ovoid, cellular-pubescent, the broadly rounded margin densely ciliate-pubescent, 0.5 mm long, 0.6 mm wide, 0.5 mm deep, shallowly concave anteriorly, the bar protuberant on either side of the glenion, the dorsum with a rounded callus, the base hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the anther and the bilobed stigma apical.

Pastaza: roadside forest south of Puyo toward Macas, alt. 900 m, 28 Feb. 2001, *C. Luer, J. Luer & A. Hirtz 19560* (Holotype: MO); Río Negro between Baños and Puyo, alt. 1200 m, 6 Mar. 1963, *C.H. Dodson & L.B. Thien 2331* (SEL).

This tiny species is characterized by a few hair-like, flexuous racemes with minute flowers that eventually exceed the elliptical leaf. The sepals are broadly ovate and obtuse. The petals are single-veined and flabellate with the rounded margin minutely but very densely ciliate-pubescent. The tiny lip is broadly rounded and also densely ciliate-pubescent, especially on the margin.

143. **Stelis ciliolata** Luer & Dalström, sp. nov.

Ety.: From the Latin *ciliolatus*, "ciliate," referring to the sepals.

Species haec *S. argentatae* Lindl. similis, sed sepalis glabris marginibus marginatis ciliatisque, et labelli glenione bene marginato differt.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2.5-4 cm long, enclosed by a tubular sheath from below the middle and 2-3 others at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 5-12 cm long including the petiole 1-4 cm long, the blade 1-3.2 cm wide, cuneate below into the petiole. **Inflorescence** 1-3 erect or suberect, subdense, distichous, several-flowered racemes with most flowers open simultaneously, 5-11 cm long including the peduncle 2-4 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, dilated, 4 mm long; pedicels 1.5 mm long; ovary 4 mm long; **sepals** expanded, purple to creamy white, suffused with rose centrally, with narrowly thickened margins ciliate, connate basally, broadly ovate, obtuse, the dorsal sepal 4.5 mm long, 5 mm wide, 5-veined, the lateral sepals 4 mm long, 4.5 mm wide, 4-veined; **petals** transversely cuneate-obovate, shallowly concave, 1-1.25 mm long, 1.8-2.25 mm wide, 3-veined, the apex broadly rounded with the margin thickened; **lip** thick, transversely subquadrate, 1 mm long, 1.6 mm wide, 0.6 mm deep, concave inside a thin, minutely apiculate, apical margin, the the bar with a protruding, small but well-defined glenion, the dorsum flat, gelatinous when living, the base broadly truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 2 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: between Loja and Zamora, alt. 2000-2400 m, 4 Mar. 1990, *S. Dalström & L. Årnby 1441* (Holotype: MO), C. Luer illustr. 20474; east of the pass east of Loja, near Km. 41, alt. ca. 1500 m, 3 Nov. 1982, flowered in cultivation at SEL, 12 May 1983, *C. Luer 9064* (SEL); Cordillera del Condor, east of Los Encuentros, alt. 1550 m, 18 May 1988, *C. Luer, A. Hirtz et al. 13446* (MO).
Loja: above Vilcabamba, alt. 2000-2400 m, May 1985, *D. D'Alessandro 358* (MO).

This species, apparently endemic in southeastern Ecuador, is superficially similar to *S. argentata*. It is characterized by broad, thickly coriaceous leaves with shorter, stout ramicauls, and shorter racemes. Large floral bracts enclose the short pedicels and the ovaries. The sepals are broadly ovate with thickened, ciliated margins. The margin of the lip is similarly apiculate, and the dorsum is flat.

144. **Stelis cingens** Luer & Hirtz, sp. nov.

Ety.: From the Latin *cingens*, "surrounding," referring to the petals surrounding the column and lip.

Planta grandis ascendens-repens, racemo multifloro congesto floribus parvis alternantibus foliis ellipticis acutis longipetiolatis longiore, sepalis late ovatis glabris, petals columnam labellumque cingentibus et labello transverse ovoideo distinguitur.

Plant large, epiphytic, the rhizome stout, ascending, repent; roots slender. Ramicauls erect or ascending, slender, 5-13 cm long, enclosed by a tubular sheath and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical, acute, long-petiolate, the blade 6-10 cm long, 1.5-2 cm wide, cuneate below into the slender petiole 1.5-2 cm long. **Inflorescence** a strict, erect, congested, secund, many-flowered raceme with most flowers open simultaneously, the flowers alternating, facing one side, to 17 cm long including the peduncle 1.5 cm long, from below the apex of the ramicaul, with a spathe 10 mm long; floral bracts inflated, oblique, obtuse, 3 mm long; pedicels 1.5 mm long; ovary 0.75 mm long; flowers either yellow or purple; **sepals** expanded, glabrous, broadly ovate, obtuse, connate basally, the dorsal sepal 2.75 mm long, 2.75 mm wide, 3-veined, the lateral sepals 2 mm long, 2.25 mm wide, 3-veined; **petals** transversely ovate, thin, concave, completely surrounding column and lip, with the apex broadly obtuse, thickened, 0.5 mm long, 1-1.5 mm wide expanded, 3-veined; **lip** thick, transversely oblong-ovoid, the apex round with a thick margin, 0.5 mm long, 0.8 mm wide, 0.5 mm deep, the bar thick with a proportionately large glenion, the dorsum with a broad, low callus, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1 mm wide, the anther and the bilobed stigma apical.

Bolívar: near the pass north of Chillanes, alt. 2650 m, 11 Mar. 1991, *C. Luer, J. Luer, A. Hirtz et al. 14991* (Holotype: MO).

This large species from south-central Ecuador is characterized by a stout rhizome, ascending ramicauls, and a long raceme that far exceeds the leaves. The small flowers are arranged alternating, touching, perpendicular to the rachis, and all facing one direction. The sepals are broadly ovate. The petals completely surround the column and lip, overlapping above the column, and below the lip.

145. **Stelis clusaris** Luer & Hirtz, sp. nov.

Ety.: From the Latin *clusaris*, "closing easily," referring to the flowers.

Species haec *S. lindeii* Lindl. similis, sed ramicauli proportione breviore, racemo congesto e basi multifloro foliis anguste obovatis subsessilibus leviter longiore, et sepalis trinervis differt.

Plant large, epiphytic, the rhizome stout, ascending, shortly repent; roots slender. Ramicauls erect, stout, 4-6 cm long, enclosed by a loose, tubular sheath 2 sheaths at the base. **Leaf** erect, coriaceous, elliptical-obovate, subacute to obtuse, 10-14 cm long, 1.7-2.5 cm wide, narrowed below into an indistinct petiole ca. 1 cm long. **Inflorescence** 1-2 strict, erect, congested, secund, many-flowered racemes with many flowers open simultaneously, but closing if disturbed, facing one side, 15-20 cm long including a peduncle 1.5-3 cm long, from an annulus below the apex of the ramicaul, with a spathe 8 mm long; floral bracts infundibular, oblique, acute, imbricating from below the middle, 4-6 mm long; pedicels 1.5-2 mm long; ovary 1.5-2 mm long; **sepals** yellow-green, fleshy, glabrous externally, minutely diffusely papillose within, broadly ovate, obtuse, connate below the middle, the dorsal sepal 2.5 mm long, 3 mm wide, 3-veined, the lateral sepals 2 mm long, 2.5 mm wide, 3-veined; **petals** transversely ovate, the apex broadly rounded, thick, concave, with an indistinct transverse callus, 0.75 mm long, 1 mm wide, 3-veined; **lip** thick, subquadrate, the apex round with a thick margin, 0.8 mm long, 0.8 mm wide, 0.6 mm deep, the bar thick with a distinct glenion that extends onto the dorsum with a broad, low callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.8 mm wide, the anther and the bilobed stigma apical.

Morona-Santiago: Chiviasa, east of Limón, alt. 1300 m, 23 Oct. 1999, *A. Hirtz, E. Sánchez & S. Marin 7034* (Holotype: MO); near Gualaquiza, collected in 1976, flowered in cultivation at SEL, 17 June 1981, *C. Luer 6332* (SEL).
Zamora-Chinchipe: Cordillera del Condor, west of Paquisha, alt. 850 m, 19 Feb. 1986, *C. Luer, J. Luer, A. Hirtz et al. 11923* (MO); along Río Zamora, west of Zamora, alt. 950 m, 20 Feb. 1986, *C. Luer, J. Luer, A. Hirtz et al. 11948* (MO).

This species of southeastern Ecuador is closely related to *S. lindenii* Lindl., but it is distinguished from the latter by a ramicaul that is distinctly shorter than the narrowly obovate, subsessile leaves, and racemes that flower from near the base. The crowded, secund racemes of the two species with small, sensitive flowers are extremely similar. The sepals of *S. clusaris* are three-veined instead of five-veined.

146. **Stelis condorensis** Luer & Hirtz, sp. nov.

Ety.: Named for the Cordillera del Condor where this species was collected.

Planta grandis, racemis paucis multifloris foliis ellipticis petiolatis longioribus, sepalo dorsali anguste ovato, lateralibus ovatis obliquis infra medium connatis, petalis obovatis concavis, et labelli dorso unicalloso ad basim protracto distinguitur.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 8-13 cm long, enclosed by a tubular sheath below the middle, and 2-3 above the base. **Leaf** erect, coriaceous, elliptical, subacute, petiolate, 9-12 cm long including a petiole 1.5-2 cm long, the blade 1.2-2.5 cm wide, cuneate below into the petiole. **Inflorescence** 2-3 erect, lax, distichous, many-flowered racemes, with many flowers open simultaneously, up to 22 cm long including the peduncle ca. 2 cm long, with a spathe 1-1.5 cm long; floral bracts tubular, obtuse, 3 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; flowers green, **sepals** glabrous, with sides more or less revolute, the dorsal sepal narrowly ovate, narrowly obtuse or subacute, 4 mm long, 1.75 mm wide, 3-veined, connate basally to the lateral sepals, the lateral sepals ovate-triangular, acute, connate to near the middle, 4 mm long, 1.5 mm wide, 3-veined; **petals** broadly obovate, concave, with the apex broadly rounded, the margin thickened externally, 0.8 mm long, 1 mm wide, 3-veined; **lip** obovoid, 0.8 mm long, 0.7 mm wide, 0.5 mm deep, concave anteriorly with the rounded apex thickened, the bar with protruding edges on either side of a small glenion, the dorsum concave with a single, erect, rounded callus, the base elongated, truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.7 mm wide, the anther and the bilobed stigma apical, the foot obsolescent.

Zamora-Chinchipe: Cordillera del Condor, east of Los Encuentros, alt. 1550 m, 18 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13460* (Holotype: MO).

This species from the Cordillera del Condor is characterized by a large, caespitose habit with ramicauls longer than relatively long-petiolate, elliptical leaves. Two or three, sublax, many-flowered racemes exceed the leaf. The dorsal sepal is narrowly ovate, and the lateral sepals are connate to near the middle constricting the central apparatus between convex inner surfaces. The concave petals are consequently crowded, partially covering the stigmas, and without any part of the internal surface visible. A single, erect, rounded callus is present on the dorsum with the base behind it elongated.

147. **Stelis coronaria** Luer, sp. nov.

Ety.: From the Latin *coronarius*, "with a crown," referring to the rim around the central apparatus.

Planta mediocris ascendens-caespitosa, racemo multifloro congesto disticho foliis tenuibus longiore, floribus parvis brevipedicillatis, sepalis latissime ovatis cum corona concava centrali, petalis crescentiformibus et labello minute apiculato distinguitur.

Plant medium in size, epiphytic, densely caespitose-ascending; roots slender. Ramicauls erect slender, 6-9 cm long, enclosed by a tubular sheath on the middle third and another 1-2 sheaths at the base. **Leaf** erect, thinly coriaceous, narrowly elliptical, acute, petiolate, 8-11 cm long, 1-1.2 cm wide, cuneate below into the 1.5 cm long petiole. **Inflorescence** a strict, erect, congested, distichous, simultaneously many-flowered raceme with most flowers open simultaneously, 10-15 cm long including a peduncle ca. 1.5 cm long, the flowers opposite-facing, with a spathe 6-7 mm long, from the annulus below the apex of the ramicaul; floral bracts short, tubular, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; flowers rose; **sepals** expanded, broadly ovate, obtuse to rounded at the apex, connate to near the middle, with a circular, elevated ridge across the lower third surrounding the central apparatus, glabrous within the circle, short-pubescent above the circle, the hairs capitate, the dorsal sepal 2.5 mm long, 2.8 mm wide, 3-veined, the lateral sepals 2 mm long, 2.5 mm wide, 3-veined; **petals** crescentiform, the apex broadly rounded with a thick, flattened margin, concave basally below a transverse callus, 0.5 mm long, 1 mm wide, 3-veined; **lip** thick, subquadrate, 0.3 mm long, 0.6 mm wide, 0.6 mm deep, the apical third concave with a round, minutely apiculate margin, the bar thick, filling the lip, with a narrow glenion, the base villous-pubescent, truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.75 mm wide, the anther and the bilobed stigma apical.

Carchi: forest between Maldonado and Chical, alt. 1500 m, 15 Jan. 1992, *C. Luer, J. Luer, A. & P. Jesup 16020* (Holotype: MO).
Cotopaxi: Macuchi, between Quevedo and Latacunga, alt. 1600 m, 1 May 1968, *G. Harling, G. Storm & B. Ström 8827* (GB).

This species from northwesternmost Ecuador is characterized by an ascending, thickly caespitose habit. The leaves are thinly coriaceous and narrowly elliptical. The slim, congested raceme of numerous small, short-pedicellate flowers exceeds the leaf. The sepals are broadly ovate, broadly obtuse and connate to near the middle with a ciliate, circular ridge enclosing the basal third around the petals, column and lip. Within the circle they are glabrous, while short-pubescent beyond the circle with capitate hairs. The petals are crescent-shaped, and the apex of the lip is round with a minute apiculum.

148. **Stelis cotyligera** Luer & Hirtz, sp. nov.

Ety.: From the Greek *cotyliger*, "cup-bearing," referring to the shape of the lip.

Planta mediocris caespitosa, racemo laxe subflexuoso plurifloro folio elliptico longiore, sepalis glabris late ovatis revolutis, petalis semilunatis concavis, et labello suborbiculato concavo distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3 cm long, enclosed by a tubular sheath and another at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 6-8 cm long, including a petiole 1.5-2 cm long, the blade 1-1.3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, subflexuous, simultaneously several-flowered raceme, with the flowers non-resupinate, 10-11 cm long including the peduncle 3-4 cm long, with a spathe ca. 5 mm long, from an annulus below the apex of the ramicaul; floral bracts tubular, acute, 3-4 mm long; pedicels 1.5 mm long; ovary 3 mm long; flowers non-resupinate; **sepals** recurved, purple, glabrous, broadly ovate, obtuse, connate basally into a cup, the dorsal sepal 4 mm long, 4 mm wide, incompletely 5-veined, the lateral sepal sepals oblique, 3.5 mm long, 3.5 mm wide, incompletely 4-veined; **petals** protruding, purple, transversely ovate, concave, with the apex broadly rounded with a thick margin, 1.3 mm long, 2 mm wide; **lip** purple, suborbicular, 1 mm long, 1.3 mm wide, 0.75 mm deep, deeply concave with the margins thin, rounded at the apex, the bar with a deep glenion, the dorsum thickened, minutely pubescent, the base truncate, hinged to the base of the column; **column** stout, 1.2 mm long, 1.5 mm wide, the anther and the bilobed stigma apical.

Morona-Santiago: near Chigüinda, cultivated by Ecuagenera at Gualaceo, 17 Apr. 2001, *A. Hirtz 7706* (Holotype: MO), C. Luer illustr. 20463; without collection data, cultivated by Ecuagenera at Gualaceo, 5 Mar. 2001, *C. Luer 19714* (MO).

This species from southeastern Ecuador is characterized by a loose, several-flowered raceme of purple, non-resupinate flowers. The sepals are revolute with their bases connate into a cup from which the petals protrude. The lip is round and concave with thin margins.

149. **Stelis cyathiformis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *cyathiformis*, "formed like a cup," referring to the shape of the lip.

Planta parva mediocrisve caespitosa, racemo disticho multifloro foliis angustissime ellipticis longiore, sepalis ovatis intus longipubescentibus, petalis semilunatis indistincte nervis, et labello suborbiculato profunde concavo ad medium fissurato distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots fine. Ramicauls erect, slender, 2-3 cm long, enclosed by a tubular sheath and another at the base. **Leaf** erect, coriaceous, narrowly linear-elliptical, acute, 6-7 cm long, including an indistinct petiole ca. 1 cm long, the blade 0.5-0.6 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, subcongested, distichous, many-flowered raceme with most flowers open simultaneously, with the flowers facing downward, 15 cm long including the peduncle 6 cm long, with a spathe 5 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 4 mm long; pedicels 2 mm long; ovary 1 mm long; **sepals** purple with long, white pubescence within, ovate, obtuse, connate basally, the dorsal sepal 3 mm long, 2.25 mm wide, 3-veined, the lateral sepals directed obliquely forward, 2.8 mm long, 2.25 mm wide, 3-veined; **petals** purple, transversely ovate, with the apex broadly rounded with a thick margin, shallowly concave at the base, 0.75 mm long, 1 mm wide; **lip** purple, suborbicular, 1 mm long, 1 mm wide, 1 mm deep, deeply concave with the margins thin, rounded at the apex, the bar shelf-like, retuse, deeply cleft, with a thick callus dorsally, the base truncate, hinged to the base of the column; **column** stout, 1.2 mm long, 1 mm wide, the anther and the bilobed stigma apical.

Azuay: between Soldades and Molleturo, alt. 2800 m, cultivated at Ecuagenera, 17 Apr. 2001, *A. Hirtz 7564* (Holotype: MO), C. Luer illustr. 20429a.

This species from southwestern Ecuador is characterized by a slender raceme of small, downward facing flowers that exceed a very narrow leaf. The sepals are purple with a long, dense, white pubescence, especially at the tips. The lateral sepals are more or less directed forward. The lip is spherical and deeply concave, but the thin margins are not incurved. The bar is deeply cleft centrally, and callous dorsally.

150. **Stelis decurva** Luer, sp. nov.

Ety.: From the Latin *decurvus*, "turned downward," referring to the flowers.

Planta parva caespitosa, racemo disticho multifloro foliis anguste ellipticis longiore, sepalis ovatis intus pubescentibus, petalis cuneatis uninervis, et labello oblongo supra medium concavo infra medium calloso pubescenti distinguitur.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 1.5-2.5 cm long, enclosed by a tubular sheath and another 1 or 2 at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute to acute, indistinctly petiolate, 4-5.5 cm long including a petiole ca. 1 cm long, the blade 0.6-0.8 cm wide, cuneate below into the petiole. **Inflorescence** a distichous, sublax, successively many-flowered raceme 6-9 cm long including the peduncle 2-3 cm long, with several flowers open simultaneously, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** yellow, expanded beyond the base, connate basally nearly 1 mm, glabrous externally, pubescent within, ovate, obtuse, 3-veined, the dorsal sepal 2.5 mm long, 2 mm wide, the lateral sepals 2 mm long, 2 mm wide; **petals** yellow, cuneate, concave, broadly truncate at the apex with the edge thickened, 1.3 mm long, 1.5 mm wide, 1-veined; **lip** brown, oblong, 1.6 mm long, 1.3 mm wide, concave above the middle with the apical margin rounded, thickly callous below the middle, with a glenion on the anterior surface, the base pubescent, truncate, hinged to the obsolescent column-foot; **column** stout, 1.5 mm long, 1.3 mm wide, with the anther and the bilobed stigma apical.

Loja: forest above Jimbura, alt. 3350 m, 21 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9646* (Holotype: MO).

This species from southernmost Ecuador is characterized by the densely caespitose habit; narrowly elliptical leaves longer than the ramicauls; and a successively flowered, distichous raceme. The pedicels are short and deep within the floral bract. The ovary curves abruptly so that all flowers face downward. The sepals are ovate and pubescent; the petals are cuneate and single-veined; and the lip is oblong, concave above the middle and thickly callous below the middle.

151. **Stelis discoidea** Luer & Dalström, sp. nov.

Ety.: From the Latin *discoideus*, "discoid," referring to the lip.

Species haec *S. maloi* Luer affinis, sed petalis labelloque non compactis et labello discoideo differt.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 5-6 mm long, enclosed by a tubular sheath, and another at the base. **Leaf** erect, coriaceous, elliptical, petiolate, acute to subacute, 20-27 mm long including a petiole ca. 5 mm long, 8-9 mm wide, cuneate below into the petiole. **Inflorescence** an erect, loosely few-flowered raceme with 2-3 non-resupinate flowers open simultaneously, 3-5 cm long including the peduncle 3 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, broadly infundibular, 1.5 mm long; pedicels 2 mm long; ovary 2-2.5 mm long; **sepals** tan, glabrous, broadly ovate to suborbicular, convex, obtuse to rounded at the apex, connate basally, the dorsal sepal 2.5 mm long, 2.75 mm wide, 3-veined, the lateral sepals oblique, 2 mm long, 1.75 mm wide; **petals** yellow, transversely elliptical-oblong, concave, 0.8 mm long, 1.2 mm wide, 3-veined, with the apex transversely obtuse with a slightly thickened margin; **lip** yellow, subquadrate-suborbicular, discoid, shallowly concave with the apex broadly rounded, 0.4 mm long, 1 mm wide, 0.8 mm deep, the disc with a faint glenion, the base truncate, minutely pubescent, hinged to a short column-foot; **column** stout, 1 mm long, 1 mm wide, the anther and bilobed stigma apical.

ECUADOR: **Pastaza**: forest southeast of Puyo, alt. 1000 m, 21 Feb. 1990, *S. Dalström & Årnby 1397* (Holotype: MO), C. Luer illustr. 20457. **Morona-Santiago**: new road between Mendez and Morona, alt. <1000 m, 19 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4146* (MO).

This species is closely allied to *S. maloi* which is relatively frequent in southeastern Ecuador. Vegetatively inseparable with a loose, few-flowered raceme, the flowers are superficially similar. The sepals are similarly broadly ovate and convex. Instead of being connate basally into a cup which snugly contains the central apparatus, the central apparatus is widely exposed. The petals are thin, suborbicular and convex. The lip is similar to the petals in size and shape, being shallowly concave with a rounded apex. The base is densely short-pubescent on the end.

152. **Stelis epibator** Luer & Hirtz, sp. nov.

Ety.: From the Greek *epibator*, "a climber," referring to the scandent habit.

Planta mediocris ascendens longirepens, racemo erecto multifloro quam folio elliptico petiolato plus minusve aequanti, sepalis obtusis glabris, et labello transverse triangulari distinguitur.

Plant medium in size, epiphytic, ascending, long-repent, the rhizome slender, to 30 cm or more long, suberect, 1.5-2.5 cm long between ramicauls; roots very slender. Ramicauls erect, slender, 4-5 cm long, enclosed by 2 close, tubular sheaths. **Leaf** erect, coriaceous, elliptical, long-petiolate, with the apex subacute to acute, 3-6 cm long including the petiole 1.5-2.5 cm long, the blade 1-1.5 cm wide, cuneate below into the slender petiole. **Inflorescence** an erect, congested, distichous, slightly flexuous, many-flowered raceme, with several flowers open simultaneously, 5-6 cm long including the peduncle 1.5-2.5 cm long, subtended by a minute spathe at an annulus near the apex of the ramicaul; floral bracts oblique, infundibular, acute, 3 mm long; pedicels 1.5 mm long; ovary 1.25 mm long; **sepals** yellow, glabrous, broadly ovate, obtuse, connate below the middle, the dorsal sepal 2.75 mm long, 3 mm wide, 3-veined, the lateral sepals oblique, 2.3 mm long, 2 mm wide, 3-veined; **petals** yellow, transversely obovate, 0.9 mm long, 1.6 mm wide, 3-veined, shallowly concave below the broadly obtuse, thickened margin; **lip** yellow, thick, subtriangular, 0.6 mm long, 1.25 mm wide, 0.6 mm deep, the apex rounded, the bar shallowly concave anteriorly with a large but superficial glenion, the dorsum with a single, rounded callus, the base broadly truncate, hinged to the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Azuay: east of Cuenca, above Cumbe, alt. 2800 m, 6 Mar. 2001, *C. Luer, J. Luer, A. Hirtz, E. Sanchez & L. Suin 19758* (Holotype: MO).
Bolívar: Hda. Talahua, alt. 2700 m, 7 May 1939, *C.W. Penland & R.H. Summers* (AMES, COCO).
Morona-Santiago: between Sigsig and Gualaquiza, Campamento San Miguel, alt. 3000 m, 8 Apr. 1968, *G. Harling, G. Storm & B. Ström 8052* (GB); between Sigsig and Chiguinda, alt. 3100 m, 5 Feb. 1988, *U. Molau, B. Eriksen & M. Fredrikson 2952* (GB); east of the pass southeast of Sigsig, alt, 2950 m, 15 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13342* (MO).

This species is characterized by the long ascending rhizome with distant ramicauls; elliptical, long-petiolate leaves; and a congested raceme of small yellow flowers about as long as, or slightly longer than the leaf. The sepals are broadly ovate, obtuse and glabrous; the petals are semilunate; and the lip is broadly triangular with a large glenion, and a rounded callus on the dorsum.

153, 153a. **Stelis esmeraldae** Luer & Hirtz, sp. nov.

Ety.: Named for the province of Esmeraldas where the species occurs.

Planta parva caespitosa, racemo flexuoso foliis ellipticis plus minusve longiore, sepalis late ovatis breviter pubescentibus sepalo dorsali majori, petalis reniformibus margine lato crassoque, et labello subquadrato apice obtuse retuso superne calloso distinguitur.

Plant small, epiphytic, caespitose; roots filiform. Ramicauls erect, slender, 1-1.5 cm long, enclosed by a tubular sheath and 1-2 shorter sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, 2-5.5 cm long including an indistinct petiole 0.5-1 cm long, the blade 0.9-1.4 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, loose, flexuous several-flowered raceme, with several flowers open simultaneously, 3-5 cm long including the peduncle ca. 1.5 cm long, from below the apex of the ramicaul; floral bracts oblique, acute, 1.5-2 mm long; pedicels 1.5 mm long; ovary 1.75 mm long; **sepals** dull purple, light green toward the apices, expanded, densely short-pubescent, glabrous externally, broadly ovate, obtuse, connate basally, the dorsal sepal 3.5 mm long, 4.3 mm wide, 3-veined, the lateral sepals oblique, 2-2.5 mm long, 3.75 mm wide, 3-veined; **petals** purple, transversely reniform, 1 mm long, 1.8 mm wide, 3-veined, the apex broadly rounded with a broad, thick,

cellular-glandular margin that covers a transverse callus, the margin recurved medially to accommodate a stigma and to expose the center of the transverse callus, concave basally; **lip** purple, thickly subquadrate, 0.75 mm long, 1 mm wide, 0.75 mm deep, concave anteriorly within a broad margin that is protuberant at the broadly obtuse apex, the bar with a thick glenion, the dorsum with a central, rounded callus, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.2 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Esmeraldas: wet forest west of Lita toward San Lorenzo, alt. 750 m, 18 Jan. 1987, *C. Luer, J. Luer, A. Hirtz, et al. 12423* (Holotype: MO); same collection data, *C. Luer et al 12393* (MO); wet forest west of Lita, alt. 300 m, 12 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 15581* (MO).

This species from wet, lowland forest of coastal Ecuador is distinguished by a small caespitose habit with elliptical leaves eventually surpassed by a flexuous raceme of flowers. The petals are remarkable with broad, thick, flattened margins. Apparently caused by pressure from the stigmas while in bud, the inner margin curves inward, exposing the central portion of a transverse callus that is otherwise covered by the broad margin. The broad apex of the lip slightly protrudes.

154. **Stelis exacta** Luer & Hirtz, sp. nov.

Ety.: From the Latin *exactus*, "exact, precise," referring to the arrangement of the flowers.

Species haec *S. spathulatae* Poepp. & Endl. affinis, sed foliis oblongis latioribus, racemo stricto secundo exacto, sepalis ovatis convexis, labello breviore differt.

Plant small, epiphytic, ascending-caespitose; roots slender. Ramicauls fasciculate, erect, slender, 1.5-2.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, coriaceous, oblong, obtuse to rounded at the apex, 3-4.5 cm long including a petiole 0.5-0.8 cm long, 0.9-1.2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, dense, distichous, secund, many-flowered raceme, with most flowers open simultaneously, precisely arranged alternately, 5-8 cm long including the peduncle ca. 1.5 cm long, from an annulus below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 3-3.5 mm long, imbricating, enclosing the pedicels and ovaries; pedicels 1 mm long; ovary 1.25 mm long; **sepals** expanded, similar, yellow, glabrous, connate basally, ovate, acute, 1.75 mm long, 1.25 mm wide, 3-veined; **petals** yellow, cuneate-obovate, shallowly concave, 0.6 mm long, 0.5 mm wide, 1-veined, the apex concave, truncate, thickened externally; **lip** yellow, subtriangular, 0.3 mm long excluding the apiculum, 0.5 mm wide, 0.5 mm deep, the lateral margins obtusely angled, the apex abruptly narrowly triangular, the bar with a concave glenion anteriorly, the apex thick, longacuminate, the dorsum shortly pubescent, truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

ECUADOR: **Azuay**: west slope of the Cordillera del Molleturo, above Río Shurimal, alt. 1100 m, 27 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16187* (Holotype: MO).

This little species, apparently rare in southwestern, coastal Ecuador, is closely related to the common and widely distributed *S. spathulata*. It differs from the latter with broader, oblong leaves, and a densely flowered raceme with all the flowers facing one side in alternating positions from long floral bracts that are out of sight behind. The flowers are equally minute with equal, ovate sepals; similar single-veined petals; and a similar, apiculate lip except that the body of the lip is shorter and deeper.

155. **Stelis fabulosa** Luer & Endara, sp. nov.

Ety.: From the Latin *fabulosus*, "fabulous," referring to the most unusual inflorescence.

Species haec *S. tridactyloni* Luer similis, sed sepalis lateralibus 180° divergentibus et labello ad apicem obtuso apiculato, ad medium tricanaliculata, et ad basim transverse calloso differt.

Plant large, epiphytic, densely caespitose; roots slender. Ramicauls stout, erect, 10-18 cm long, the middle third enclosed by a long, loose, tubular sheath, and another 2 tubular sheaths at the base. **Leaf** erect, coriaceous, elliptical-oblong, obtuse to subacute, 12-15 cm long, 2-2.75 cm wide, cuneate below into a subpetiolate base. **Inflorescence** an erect, distichous, subdensely many-flowered raceme, with most flowers open simultaneously, precisely arranged alternately, 20-30 cm long including the peduncle 8-10 cm long, from a spathe 2-2.5 cm long, below the apex of the ramicaul; floral bracts tubular, 3-5 mm long; pedicels 2.5-3 mm long; ovary 2 mm long; flowers yellow to yellow-brown; **sepals** similar, sparse-

ly cellular-pubescent, oblong-ovate, subacute, connate basally into a cup, the dorsal sepal 8 mm long, 3 mm wide, 3-veined, the lateral sepals diverging 180°, 8 mm long, 3.5 mm wide, 3-veined; **petals** cuneate-obovate, 0.6 mm long, 0.5 mm wide, 3-veined, shallowly concave, minimally thickened, the apex broadly rounded; **lip** subquadrate-triangular, 1 mm long, 1.3 mm wide, 0.6 mm deep, the apex obtuse, minutely apiculate, the bar with a rounded, central callus and channeled to either side, the callus with a midline channel, the dorsum with a low, transverse, shortly pubescent callus, truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 1.5 mm wide, the foot obsolescent, the anther and elongate stigmatic lobes apical.

Loja: west of the pass west of Loja, alt. 2800 m, 7 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1559* (Holotype: SEL); same area, alt. 2700 m, 14 Feb. 1985, *G. Harling & L. Andersson 22049* (AMES, GB); east of Nudo de Cajanuma, alt. 2900 m, 21 Oct. 1989, *A. Bøgh 86572* (AAU, LOJA); Saraguro, *G.P. Lewis 3115* (K).

This large species, similar to *S. tridactylon*, is endemic in southern Ecuador. Produced in two opposite-facing ranks of three-pronged flowers on a long raceme, the narrowly oblong lateral sepals of the large flowers are expanded 180°. They are only slightly more deeply connate to the dorsal sepal than to each other.

156. **Stelis gemmulosa** Luer & Hirtz, sp. nov.

Ety.: From the Latin *gemmulosus*, "full of little gems," referring to the raceme.

Planta perparva caespitosa, racemo elongato flexuoso multifloro foliis ellipticis multilongiore, sepalis ovatis obtusis longiciliatis, petalis tenuibus transveriis uninervis latiore quam longiore, et labello oblique subquadrato callo crasso superne pubescenti distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 4-5 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to acute, indistinctly petiolate, 10-15 mm long, 3-4.5 mm wide, cuneate below into the petiole. **Inflorescence** an erect, flexuous, successively many-flowered raceme to 6 cm long including the peduncle 1-1.5 cm long, with a few flowers open simultaneously; floral bracts oblique, acute, 1 mm long; pedicels 1 mm long; ovary 0.5 mm long; flowers minute, red-purple; **sepals** glabrous externally, long-ciliate-pubescent on the margins, ovate, obtuse, 3-veined, connate basally, the dorsal sepal 1.6 mm long, 1.4 mm wide, the lateral sepals 1.2 mm long, 1.3 mm wide; **petals** purple, thin, suborbicular, shallowly concave, broadly rounded at the slightly thickened apex, 0.5 mm long, 0.6 mm wide, 1-veined; **lip** purple, obliquely subquadrate, 0.4 mm long, 0.5 mm wide, 0.4 mm deep, convex anteriorly with the apex broadly obtuse, the bar protruding with a shallow glenion, the dorsum with a round, pubescent callus, the base truncate, hinged to the obsolescent column-foot; **column** stout, 0.5 mm long, 0.75 mm wide, with the anther and bilobed stigma apical.

Esmeraldas: forest west of Lita, alt. 300 m, 12 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 15577* (Holotype: MO).

This tiny species, apparently endemic in lowland, western Ecuador, is characterized by a caespitose habit, and an elongating, successively many-flowered raceme of tiny, purple flowers. The sepals are broadly ovate and long ciliate-pubescent on the margins; the petals are thin and single-veined; and the lip is subquadrate with a protuberant, convex callus on the anterior surface.

157. **Stelis glanduligera** Luer & Hirtz, sp. nov.

Ety.: From the Latin *glanduliger*, "gland bearing," referring to the cellular-glandular sepals.

Planta parva caespitosa, racemo plurifloro flexuoso foliis anguste ellipticis plus minusve aequali, sepalis ovatis obtusis glandulosis lateralibus expansis, petalis crassis spathulatis uninervis, et labello cymbiformi infra medium calloso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 10-20 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute to acute, indistinctly petiolate, 25-35 mm long including a petiole less tha 10 mm long, 4-6 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, flexuous, sublax, simultaneously several-flowered raceme 2.5-3 cm long including the peduncle 1-2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** rose, glabrous externally, cellular-glandular within, ovate, obtuse, 1.2 mm long, 1 mm wide, 3-veined, connate basally, the lateral sepals diverging; **petals** dark rose, thickly spathulate, shallowly concave, broadly rounded at the apex, 1 mm long, 1 mm wide, 1-veined; **lip** dark rose, oblong, 0.66 mm long, 0.5 mm wide, 0.3 mm deep, concave anteriorly within the broadly obtuse, apical margin, the bar cleft near the middle with a distinct glenion, the dorsum minutely pubescent above the base, the base truncate, hinged to the obsolescent column-foot; **column** stout, 0.5 mm long, 0.5 mm wide, with the anther and bilobed stigma apical.

Azuay: east of Cuenca, above Cumbe, alt. 2800 m, 6 Mar. 2001, *C. Luer, J. Luer, A. Hirtz, E. Sánchez & L. Suin 19755* (Holotype: MO); south of Cumbe, alt. 3200 m, 5 Feb. 1977, *G. Harling, U. Eliasson & L. Andersson 15082* (AMES, GB).
Carchi: terrestrial in scrub forest north of El Playón, alt. 3100 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15193* (MO).

This small species, found at high altitudes in both northern and southern Ecuador, is characterized by a caespitose habit, and thick, narrowly elliptical leaves that are more or less equalled by a loose, few-flowered raceme of very small flowers. The sepals are ovate and minutely cellular-glandular within; the petals are thick, spathulate and single-veined; and the lip is oblong, concave above the bar, and minutely pubescent above the base.

158. **Stelis haltonii** Luer, sp. nov.

Ety.: Named for Joseph Swain Halton (1945-1989) of Sarasota, Florida, co-collector of this species.

Planta mediocris, foliis anguste oblongis ramicaulibus gracilibus longioribus, racemo dense multifloro folio plus minusve aequilongo, sepalis ellipticis pubescentibus, petalis late cuneatis, labello rhombiformi acuto longiore quam latiore distinguitur.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 3-7.5 cm long, enclosed by a tubular sheath near the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 7-10 cm long including an indistinct petiole 1-1.5 cm long, the blade 1.2-1.5 cm wide, gradually narrowed below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with most flowers open simultaneously, 9-12 cm long including the peduncle ca. 1.5 cm long, subtended by a slender spathe 5 mm long, from an annulus below the apex of the ramicaul; floral bracts tubular, 2.5 mm long; pedicels 1-1.5 mm long; ovary 0.75 mm long; **sepals** greenish white, glabrous externally, pubescent within, elliptical, subacute to obtuse, the dorsal sepal erect, 3 mm long, 2 mm wide, 3-veined, connate basally to the lateral sepals, the lateral sepals opposite, connate basally, 2.3 mm long, 2 mm wide, 3-veined; **petals** greenish white, transversely cuneate, shallowly concave, with the margin thickened and transversely subtruncate, 0.5 mm long, 1 mm wide, 1-veined; **lip** greenish white, thick, rhombic, acute, 0.75 mm long, 0.5 mm wide, 0.2 mm thick, shallowly concave above the middle, a glenion on the transverse thickening, the base with a flat, minutely pubescent callus, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Napo: Auca Oil Field, alt. 240 m, collected by J. Halton et al., Feb. 1979, flowered in cultivation 25 Aug. 1981, *C. Luer 6445* (Holotype: SEL); near Baeza, alt. 1900 m, 23 Feb. 1982, *C. Luer & H. Hirtz 7394* (SEL); between Tena and Puerto Napo, alt. 450 m, 18 June 1983, *C.H. Dodson et al. 14086* (SEL); Puerto Misahualli, La Cruz, Arajuno, alt. 500 m, July 1984, *A. Suarez & C. Lindberg de Suarez 159* (MO).
Morona-Santiago: Chiviasa, east of Limón, alt. 1300 m, 23 Oct. 1999, *A. Hirtz, E. Sánchez & S. Marin 7032a* (MO).
Loja: between Alamor and Puyango, alt. 500 m, 2 Apr. 1980, *G. Harling & L. Andersson 17790, 17791* (AMES, GB).

This species, apparently endemic in the lowland of eastern Ecuador, is characterized by slender ramicauls with somewhat longer, narrowly oblong leaves that are surpassed by a slender, congested raceme of small, greenish white flowers. The sepals, pubescent within, are elliptical with the laterals in opposite directions. The petals are broadly subtruncate. The lip is rhombic, longer than wide, with the apex acute and the base with a broad, minutely pubescent callus.

159. **Stelis hydroidea** Luer & Hirtz, sp. nov.

Ety.: From the Latin *hydroideus*, "like a hydroid," referring to the long-pubescent callus on the dorsum of the lip.

Planta parva caespitosa, racemo congesto foliis ellipticis longiore, floribus atropurpureis, sepalis late ovatis obtusis, petalis transverse oblongis et labello subquadrato obtuso cum callo dorsale rotundo longipubescentibus distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, fasciculate, 10-20 mm long, enclosed by a tubular sheath from below the middle and another from above the base. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute to obtuse, 2-4.5 cm long including a petiole 0.5-1 cm long, the blade 4-8 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, more or less arching, congested, simultaneously several-flowered raceme, 4-6.5 cm long including the peduncle 3-4 cm long, from an annulus below the apex of the ramicaul, with a spathe 3-4 mm long; floral bracts oblique, inflated, acute, 2.5 mm long; pedicels 1 mm long; ovary 1 mm long; flowers dark purple; **sepals** expanded, glabrous, broadly ovate, broadly obtuse, connate below the middle, the dorsal sepal 2.5 mm long, 3 mm wide, 3-veined, the lateral sepals 2.5 mm long, 2.5 mm wide, 3-veined; **petals** transversely oblong-obovate, broadly rounded at the apex with a thickened margin, shallowly concave, 1 mm long, 1.5 mm wide, 3-veined; **lip** thick, transversely subquadrate, 0.75 mm long, 1.25 mm wide, 0.75 mm deep, the apex rounded, concave anteriorly, the dorsum with a rounded, long-pubescent callus, the bar protuberant with a rounded glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1.25 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Loja: above Yangana, north of the pass, alt. 2400 m, 23 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10867* (Holotype: MO).
Zamora-Chinchipe: Cordillera de Cajanuma, south of Yangana, alt. 2450 m, 12 May 1981, *C. Luer, J. Luer & A. Hirtz 6188* (SEL); same area, alt. 2250 m, 11 May 1981, *C. Luer, J. Luer & A. Hirtz 6152* (MO).

This species of southeastern Ecuador is distinguished by a small, caespitose habit; a weak, congested, simultaneously several-flowered raceme of small, dark purple flowers that barely surpasses the elliptical leaves; broadly obtuse sepals; transversely suboblong petals with a thickened margin; and a transverse, obtuse lip with a rounded, long-pubescent callus on the dorsum.

160. **Stelis imbricans** Luer & Hirtz, sp. nov.

Ety.: From the Latin *imbricans*, "overlapping," referring to the flowers in the raceme.

Species haec *S. congestae* Luer & Hirtz affinis, sed racemo secundo congestissimo con floribus imbricantibus, petalis labelloque proportione majoribus, et labelli apice non late incrassato distinguitur.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 3-6 cm long, enclosed by a tubular sheath and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 3-7 cm long including a petiole 1-1.5 cm long, the blade 0.7-1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, very congested, secund, many-flowered raceme with many overlapping flowers facing the same direction open simultaneously, 5-7 cm long including the peduncle ca. 2 cm long, with a spathe 5 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** expanded, dark purple, glabrous externally, minutely pubescent within, broadly ovate, obtuse, convex, connate basally, the dorsal sepal 2 mm long, 1.75 mm wide, 3-veined, the lateral sepals 1.5 mm long, 1.5 mm wide, 3-veined; **petals** dark purple, transversely ovate, with the apex broadly rounded with a thick margin, shallowly concave above the base, slightly thickened across the middle, 0.8 mm long, 1 mm wide, 3-veined; **lip** dark purple, thick, subquadrate-triangular, 0.6 mm long, 0.6 mm wide, 0.5 mm deep, concave anteriorly with a long glenion, with the apex rounded with a thin margin, the dorsum with a rounded, pubescent callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.8 mm long, 0.8 mm wide, the anther and the stigma apical, with the stigma bilobed, the foot obsolescent.

Bolivar: forest south of San Miguel toward Chillanes, alt. 2650 m, 25 Mar. 1984, *C. Luer, A. Hirtz, S. Dalström, T. Höijer & J. Kuijt 9696* (Holotype: MO).

This species is closely related to *S. congesta*, but it differs from the latter with a very congested raceme of overlapping flowers facing the same direction, shorter floral bracts, a proportionately larger central apparatus, and a shallowly concave lip with a thin margin.

161. **Stelis immodica** Luer & Hirtz, sp. nov.

Ety.: From the Latin *immodicus*, "beyond bounds," in allusion to broad margin of the petal.

Planta mediocris caespitosa, racemo multifloro secundo foliis ellipticis longiore, ad basim laxifloro, supra medium congesto floribus minoribus, sepalis lateralibus conspicue minoribus obliquis, petalis suborbiculatis marginibus immodicis, et labello subtriangulari acuto distinguitur.

Plant medium in size, epiphytic, caespitose; roots filiform. Ramicauls erect, slender, 7-9 cm long, the middle third enclosed by a tubular sheath and 1-2 shorter sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 8-11 cm long including a petiole ca. 1 cm long, the blade 1.5-2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, strict, secund, many-flowered raceme, with several flowers open simultaneously, flowering from the base, up to 17 cm long, subtended by a spathe 1 cm long; floral bracts oblique, acute, 5 mm long below to 2 mm long above; pedicels 2 mm long; ovary 2 mm long; **sepals** purple, expanded, glabrous, broadly ovate, obtuse, connate below the middle, the dorsal sepal 6 mm long, 5.5 mm wide, 5-veined, the lateral sepals oblique, shortly acuminate, 3 mm long, 5 mm wide, 4-veined, the sepals of flowers above the middle of the rachis much smaller; **petals** brown, suborbicular, 1.25 mm long, 1 mm wide, 3-veined, the apex broadly rounded with the margin excessively wide, slightly convex, extending to the concave base; **lip** brown, subtriangular, the apex acute, slightly incurved, concave anteriorly with an indistinct glenion, 0.6 mm long, 0.75 mm wide, 0.6 mm wide, the dorsum subquadrate, with a low, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long and wide, the foot obsolescent, the anther and the bilobed stigma apical.

Esmeraldas: wet forest west of Lita toward San Lorenzo, alt. 800 m, 13 Aug. 1988, *A. Hirtz 2950* (Holotype: MO), C. Luer illustr. 20483.

This species from wet, lowland forest of coastal Ecuador is distinguished by a medium-sized, caespitose habit with a many-flowered raceme that exceeds the leaf. The lowest flower is produced from the very bottom. The raceme is laxly flowered below the middle, but soon becomes densely flowered with the size of the flowers much reduced. The lateral sepals are markedly oblique and half the size of the dorsal sepal. The most unusual petals are proportionately large and round with the margin so broad that it occupies the entire surface except for the narrowly concave base. The lip is triangular with an acute, slightly incurved tip.

162. **Stelis impostor** Luer & Hirtz, sp. nov.

Ety.: From the Latin *impostor*, "an impostor," referring to a mistaken identity.

Planta parvis mediocrisve caespitosa, racemo erecto paucifloro quam folio elliptico longiore, sepalis ovatis obtusis marginibus longiciliatis; petalis semilunatis, labello subplano cordato distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3 cm long, enclosed by a tubular sheath from below the middle and 2-3 other sheaths below. **Leaf** erect, coriaceous, elliptical, petiolate, with the apex subacute, 4-5 cm long including the petiole ca. 1 cm long, the blade 1-1.2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, loose, distichous, slightly flexuous, several-flowered raceme, with several flowers open simultaneously, 5-7 cm long including the peduncle 2.5-3 cm long, subtended by a slender spathe ca. 5 mm long at an annulus below the apex of the ramicaul; floral bracts tubular, oblique, obtuse, 3 mm long; pedicel 1.5 mm long; ovary 1.5 mm long; **sepals** brown-lavender with cilia white, glabrous externally, broadly ovate, obtuse, slightly convex, connate basally, the dorsal sepal 3.75 mm long, 3.5 mm wide, 5-veined, the lateral sepals oblique, 2.5 mm long, 3.5 mm wide, 4-veined; **petals** green, transversely semilunate, 0.6 mm long, 1.6 mm wide, 3-veined, shallowly concave below the broadly obtuse, thickened, subverrucose margin; **lip** green, transversely subcordate, 0.6 mm long, 1.3 mm wide, 1 mm deep, the apex rounded with thin margin, the bar shallowly concave anteriorly with a small glenion, the dorsum with a low, rounded callus, microscopically pubescent, the base broadly truncate, hinged to the column; **column** stout, 1.5 mm long, 1.5 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Morona-Santiago: near Macas, alt. 800 m, cultivated by Ecuagenera at Gualaceo, 1999, *A. Hirtz 7141* (Holotype: MO), C. Luer illustr. 20431a.

An illustration of a flower of this species by Elmer Smith was misidentified as *S. hirtella* in *Systematics of the genus Stelis* (Garay, 1980). At that time, he transferred it to "Apatostelis" because of confluent stigmatic lobes, as present in the true *S. hirtella*, but the stigmatic lobes in the illustration are separated. *Stelis impostor* also occurs on the eastern declivity of the Andes, but farther south. It is characterized by a loose raceme that exceeds the small, elliptical leaf. The pinkish brown flowers are distinguished by a long, disheveled, ciliated margin. The lip is shallowly subcordate and obtuse.

163. **Stelis intonsa** Luer & Endara, sp. nov.

Ety.: From the Latin *intonsus*, "unshaven," referring to the pubescence of the column.

Planta parva caespitosa, racemis paucis pauciflori folio elliptico longioribus, sepalis late ovatis, petalis incrassatis minutissime pubescentibus transversis trinervis, labello discoideo supra medium rotundo minutissime pubescentibus infra medium longivillosis, et columna etiam minutissime pubescenti.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-4 cm long, enclosed by 2 tubular sheaths, and another at the base. **Leaf** erect, coriaceous, narrowly obovate, subacute to obtuse, 2.5-4 cm long including a petiole 5-8 mm long, the blade 0.7-1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** 2-3 erect, somewhat arching above the middle, subcongested, several-flowered racemes, with few flowers open simultaneously, 6-9 cm long including a peduncle ca. 4 cm long, from below the apex of the ramicaul with a spathe ca. 5 mm long; floral bracts infundibular, oblique, acute, 2.5-3 mm long; pedicels 1-1.5 mm long; ovary 1 mm long; flowers "dark brownish purple," **sepals** glabrous externally, cellular-glandular within, ovate, obtuse, concave basally, connate below the middle, the dorsal sepal 2.5 mm long, 2.6 mm wide, 3-veined, the lateral sepals 2.3 mm long, 2.6 mm wide, 3-veined; **petals** transversely ovate, concave below the thick, broadly obtuse, convex margin, 1 mm long, 1.6 mm wide, 3-veined; **lip** subdiscoid, 0.8 mm long, 1.3 mm wide, 1 mm deep, shallowly concave within the rounded apical margin, minutely pubescent within, the bar low with a broad, glabrous glenion, the dorsum long-villous with a low, rounded callus, the base truncate, hinged to the base of the column; **column** microscopically pubescent, 1 mm long, 1.3 mm wide, the foot obsolescent, the anther and lobes of the stigma apical.

Loja: south slope of Cerro Villonaco, between Loja and Catamayo, alt. 2700 m, 18 June 1979, *B. Løjtnant, A. & U. Molau 15088* (Holotype: AAU; Isotype: GB), C. Luer illustr. 20512.

This small species of southern Ecuador is known only from the type-collection. The two or three several-flowered racemes are borne by equally long peduncles. The ovate sepals are connate basally into a shallow cup. The transverse petals are thick, minutely pubescent and three-veined. The lip is rounded a densely short-pubescent surrounding a large, flat, glabrous glenion, while the dorsum is long-villous. The apical portion of the column is shortly pubescent.

164. **Stelis lanuginosa** Luer & Dalström, sp. nov.

Ety.: From the Latin *lanuginosus*, "woolly," referring to the pubescence of the sepals.

Planta mediocris caespitosa, racemo foliis anguste obovatis longiore, floribus parvis intus lanuginosis, sepalis ovatis lateralibus antrorsis, petalis parvis et labello subquadrato apice concavo triangulari acuto distinguitur.

Plant medium in size, epiphytic, caespitose; roots filiform. Ramicauls erect, slender, 2.5-6 cm long, enclosed by a loose, tubular sheath and 2-3 shorter sheaths at the base. **Leaf** erect, coriaceous, narrowly obovate, subacute, 6-9.5 cm long including an indistinct petiole ca. 1 cm long, the blade 0.9-1.2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, simultaneously many-flowered raceme, with most flowers open simultaneously, 9-10 cm long including the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul with a spathe ca. 7 mm long; floral bracts narrowly oblique, acute, 4 mm long; pedicels 2 mm long; ovary 1 mm long; **sepals** dark purple with a long, white pubescence, glabrous externally, ovate, obtuse, similar, connate basally, the dorsal sepal 2.5 mm long, 2 mm wide, 3-veined, the lateral sepals more or less antrorse, 2.25 mm long, 2 mm wide, 3-veined; **petals** purple, transversely ovate, shallowly concave, the apex broadly obtuse with a thickened margin, 0.75 mm long, 1 mm wide, 3-veined; **lip** purple, thickly subquadrate, 1 mm long, 1 mm wide, 0.75 mm deep, concave anteriorly with thin margins, the apex triangular, acute, the bar thick, cleft anteriorly, the dorsum with an indistinct, low, central callus, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Tungurahua: slopes of Volcán Tungurahua above Baños, alt. 3000 m, 27 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9766* (Holotype: MO); same area, 6 Dec, 1984, *A. Hirtz 2130* (MO). **Sucumbíos**: near Santa Barbara, alt. 2700 m, 13 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12371* (AAU, GB).

This species, known from the slopes of Volcán Tungurahua, is distinguished by a caespitose habit with narrowly obovate leaves borne by shorter ramicauls concealed by loose, tubular sheaths. The raceme, longer than the leaves, is congested with many small, dark purple flowers with a long, white pubescence within. The lip is concave anteriorly with a thin margin and an acute, triangular apex.

165. **Stelis latimarginata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *latimarginatus*, "with broad margin," referring to the margin of the lip.

Planta mediocris caespitosa, foliis purpureis crassis late ellipticis quam ramicauli multilongioribus, racemo elongato congesto multifloro grandebracteato, sepalis latissime ovatis, petalis semilunatis et labello apice rotundo margine latissimo dorsaliter concavo ecalloso distinguitur.

Plant robust but medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 3-4.5 cm long, enclosed by a loose, tubular sheath from below the middle and another sheath at the base. **Leaf** purple, erect, thickly coriaceous, elliptical, obtuse, 8-10 cm long including a petiole less than 1 cm long, the blade 2.5-3.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, strict, stout, congested, distichous many-flowered raceme, to more than 22 cm long including the peduncle ca. 8 cm long, with several flowers open simultaneously, from a spathe 1.2 mm long, below the apex of the ramicaul; floral bracts broadly infundibular, dilated, acute, 7 mm long below to 5 mm long above; pedicels 7 mm long; ovary 4 mm long; flowers purple, **sepals** glabrous, transversely ovate, broadly obtuse, connate to near the middle, the dorsal sepal 5 mm long, 6-7 mm wide, 7-veined, the lateral sepals oblique, 4.5 mm long, 5-7 mm wide, 5-veined; **petals** semilunate, 1.25 mm long, 2 mm wide, 3-veined, the apex broadly rounded with a broad margin, overhanging a transverse callus, concave below the callus; **lip** semiorbicular, 0.5 mm long, 1.8 mm wide, 1.5 mm deep, the apex broadly rounded with the width of the margin approaching the height of the curved bar, the dorsum short, concave, without a callus, 5-veined, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Cordillera del Condor, east of Los Encuentros, alt. 1650 m, 18 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13441* (Holotype: MO).

This species with very broad sepals is related to *S. triplicata*. Vegetatively, it is distinct with broadly elliptical, thick, purple leaves with much shorter rmicauls. The large-bracted raceme far exceeds the leaf. This lip is most unusual with a broadly rounded apex with a broad margin extending nearly all the way to edge of the curved, featureless bar. The dorsum is short, but broad, concave and without a callus.

166. **Stelis liberalis** Luer & Portillo, sp. nov.

Ety.: From the Latin *liberalis*, "free," referring to the nonconnate sepals.

Planta parva caespitosa, racemo congesto multifloro folio elliptico multilongiore, sepalis expansis, ellipticis ad basim liberalibus, petalis uninervis et labello obtuse apiculato distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 1.5-2 cm long, enclosed by a tubular sheath from below the middle and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical, obtuse, 3.5-4.5 cm long including a petiole 0.8-1 cm long, the blade 1-1.2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, strict, slender, congested, subsecund, simultaneously many-flowered raceme, 12-16 cm long including the peduncle 4-6 cm long, from a slender spathe 7-8 mm long, below the apex of the ramicaul; floral bracts broadly infundibular, dilated, obtusely acuminate, 2 mm long, 2 mm wide; pedicels 1 mm long; ovary 1 mm long; **sepals** glabrous, greenish white, elliptical, obtuse, convex, free to near the base, the dorsal sepal 3.5 mm long, 2.2 mm wide, 3-veined, the lateral sepals oblique, 2.75 mm long, 2 mm wide, 3-veined; **petals** light purple, transversely oblong, transversely obtuse, shallowly concave, with the edge thickened, 0.6 mm long, 0.75 mm wide, 1-veined; **lip** light purple, subquadrate, 0.6 mm long, 0.75 mm wide, 0.3 mm deep, shallowly concave anterriorly, with the apex transverse with a short, obtuse apiculum, the bar broadly rounded, thick, minutely pubescent at the base, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: above Zumba, alt. ca. 1000 m, cultivated at Ecuagenera, Gualaceo, 5 Mar. 2001, *C. Luer 19734* (Holotype: MO); Río Quebrada Honda, between Valladolid and Yangana, alt. 2200 m, 27 Mar. 1986, *D. D'Alessandro & H. Mendoza 554* (MO); with questionable locality, cultivated at Ecuagenera, Gualaceo, 10 Nov. 2001, *A. Hirtz 7873* (MO).
Azuay: near Gima, cultivated in Gima by Linder Suin 39, 6 Mar. 2001, *C. Luer 19775* (MO).

This small species, apparently endemic in southernmost Ecuador, is similar to the group of species related to the *S. aprica*-complex. From them it is distinguished by the small habit with a slender, many-flowered raceme much longer than the leaves. The sepals are expanded, similar, elliptical, convex, and free except at the base. The petals are broadly oblong and single-veined. The lip is broader than long and the apex is broad with a short, obtuse apiculum.

167. **Stelis loejtnantii** Luer & Endara, sp. nov.

Ety.: Named for Bernt Løjtnant of Denmark, collector of this species.

Species haec *S. lanceae* Lindl. similis, sed sepalis intus pubescentibus et labello subapiculato cum glenio elongato et ad basim pubescenti differt.

Plant medium in size, epiphytic, ascending-repent, the rhizome stout, 0.5-2 cm long between ramicauls; roots slender. Ramicauls erect, slender, 5-9 cm long, enclosed by a tubular sheath below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly ovate, acute, petiolate, 7-9 cm long including a petiole 1.5-2 cm long, 1.5-1.7 cm wide, cuneate below into the slender petiole. **Inflorescence** an erect, strict, many-flowered raceme with several flowers open simultaneously, 7-9 cm long including the peduncle 2-3 cm long, subtended by a spathe 7-8 mm long, below the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** pale purple, glabrous externally, shortly pubescent within, broadly ovate, obtuse, connate basally, the dorsal sepal 2.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals 2 mm long, 2 mm wide, 3-veined; **petals** transversely ovate, shallowly concave, with a transverse callus, 0.8 mm long, 1.2 mm wide, 3-veined, the apex broadly obtuse with the margin thickened, cellular; **lip** subquadrate, 0.6 mm long, 0.8 mm wide, 0.4 mm deep, concave anteriorly with the apical margin slightly thickened and obtuse with a small, obtuse apiculum, the bar higher than the sides, with a longitudinal glenion extending from near the base to near the apex, the dorsum pubescent at the base, truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, with a rudimentary foot, the anther and the bilobed stigma apical.

Pichincha: between San Juán and Chiriboga, alt. 2700 m, 20 Mar. 1979, *B. Løjtnant & U. Molau 11253* (Holotype: AAU, Isotype: GB), C. Luer illustr. 20486.

This previously unrecognized species is similar to *S. lancea*, which grows nearby. Both species are characterized by an ascending rhizome, and narrowly ovate, acute, petiolate leaves slightly exceeded by many-flowered racemes of small flowers. *Stelis loejtnantii* is distinguished by shortly pubescent sepals and a distinctly different lip. Instead of an ovate glenion and a round callus on the dorsum without a patch of pubescence (the most common combinations in type-A including *S. lancea*), the glenion is narrowly elongated from a pubescent patch at the base that extends forward over a high bar before descending on the anterior surface to terminate on a low callus above the apical margin. The latter is obtusely short-apiculate. Modifications of the latter type of lip are seen in type-B. See *Icones-24*, page 5.

168. **Stelis macrolemma** Luer & Endara, sp. nov.

Ety.: From the Greek *macrolemma*, "large bract," referring to the huge floral floral bracts.

Planta mediocris grandisve, racemo erecto multifloro folio elliptico-oblongo longiore, bracteis floralibus grandissimis, sepalis obtusis glabris, labelli callo inciso distinguitur.

Plant medium to large, epiphytic, caespitose, roots slender. Ramicauls stout, 4-13 cm long, enclosed by a loose, tubular sheath from below the middle and 2-3 other sheaths below. **Leaf** erect, coriaceous, elliptical-oblong, obtuse, petiolate, 7-13 cm long including the petiole 1-1.5 cm long, the blade 1.5-3 cm wide, cuneate below into the petiole. **Inflorescence** an erect, loose, distichous, many-flowered raceme, with several flowers open simultaneously, 10-18 cm long including the peduncle 2-5 cm long, subtended with a spathe 1 cm long at an annulus below the apex of the ramicaul; floral bracts dilated, oblique, obtuse, 9 mm long and 7 mm wide below, 5 mm long and 5 mm wide above; pedicels 2 mm long; ovary 1 mm long; flowers yellow, **sepals** glabrous, broadly ovate, obtuse, connate below the middle, the dorsal sepal 4 mm long, 5 mm wide, 5-veined, the lateral sepals 3 mm long, 4 mm wide, 4-veined; **petals** transversely ovate, 1 mm long, 1.5 mm wide, 3-veined, shallowly concave below the broadly obtuse, thickened margin, with a low, transverse callus; **lip** thick, subquadrangular, 1.2 mm long, 1.2 mm wide, 1 mm deep, concave anteriorly, the apex rounded with a thickened margin, the bar shelf-like, deeply recessed centrally, the dorsum with a low, rounded callus, the base broadly truncate, hinged to the column; **column** stout, 1.5 mm long, 1.5 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Loja: below the pass east of Loja, alt. 2000 m, 6 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1543* (Holotype: SEL); near the pass east of Loja, alt. 2800 m, 6 Mar. 1977, *C. Luer, J. Luer & K. Cordoba 1549* (SEL).

This species, known from only two collections ten kilometers apart, is apparently rare in southeastern Ecuador. It is characterized by stout ramicals with long, loose sheaths, and a loosely flowered raceme with huge floral bracts within which the flowers nestle. The broadly ovate sepals, and the three-veined petals are not unusual. The lip is concave with a rounded apex, and a shelf-like bar that is deeply recessed centrally.

169. **Stelis medinae** Luer & Hirtz, sp. nov.

Ety.: Named for Hugo Medina of Gualaceo, Ecuador, co-collector of this species and many more.

Planta mediocris grandisve caespitosa, racemo elongato parvifloro disticho folio anguste elliptico longiore, sepalis convexis ovatis trinervis minute pubescentibus, sepalo dorsali quam lateralibus majore, petalis transverse oblongis et labello subquadrato apice leviter concavo rotundo.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 6-8 cm long, with a loose, tubular sheath from below the middle, and 2 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 9-11 cm long including the conduplicate, subsessile base, the blade 1.5-1.8 cm wide, cuneate below into the base. **Inflorescence** an erect, sublax, distichous, many-flowered raceme with many flowers open simultaneously, to 20 cm long including the peduncle 5-8 cm long, with a slender spathe 2 cm long at the base of the leaf; floral bracts thin, broad, oblique, acute, 1.5 mm long; pedicels 1 mm long; ovary 1.8 mm long; all floral parts light green, **sepals** very shortly pubescent within, ovate-triangular, convex with sides recurved, subacute, connate basally, the dorsal sepal 2.2 mm long, 1.6 mm wide, 3-veined, the lateral sepals similar but noticeably smaller, 2 mm long, 1.4 mm wide, 3-veined; **petals** thin, transversely elliptical-oblong with rounded ends, the apex transverse, 0.5 mm long, 1 mm wide, 3-veined, shallowly concave, the apical margin minimally thickened; **lip** thick, subquadrangular, 0.5 mm long, 0.6 mm wide, 0.6 mm deep, shallowly concave anteriorly with the apical margin rounded, the bar with a small glenion, the dorsum with a round, central callus contiguous with the glenion, the base broadly truncate, hinged to the base of the column; **column** stout, 0.5 mm long and wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: Guarumales, alt. 1500 m, cultivated by Ecuagenera, 2 Feb. 2002, *A. Hirtz 8037* (Holotype: MO), C. Luer illustr. 20209.

This rather large species is recognized by the slender, strict, sublax raceme of very small, light green flowers evenly spaced in two distinct rows. The sepals are convex with the dorsal sepal noticeably larger than the laterals that are connate only at the base. The central apparatus fits into a cavity formed by the bases of the sepals. The petals are thin and transverse, and the tiny lip is thick with the apex rounded.

170. **Stelis megalops** Luer & Hirtz, sp. nov.

Ety.: From the Greek *megalops*, "big-eye," referring to the large glenion.

Planta mediocris caespitosa, racemo congesto foliis anguste ellipticis plus minusve aequilongo, sepalis glabris late ovatis obtusis, petalis transverse semilunatis incrassatis, et labello subdiscoideo cum glenione grandi distinguitur.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 7-9 cm long, enclosed from near the middle by a tubular sheath and 2-3 tubular sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 4-6 cm long including a petiole 5-8 mm long, the blade 9-11 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested, simultaneously many-flowered raceme, 5-7 cm long including the peduncle ca. 1 cm long, from an annulus below the apex of the ramicaul, with a spathe 7-8 mm long; floral bracts oblique, infundibular, obtuse, 2 mm long; pedicels 1 mm long; ovary 1.5 mm long; flowers dark red with a silver hue within, **sepals** expanded, glabrous, broadly ovate, broadly obtuse, connate below the middle, the dorsal sepal 2.5 mm long, 2.5 mm wide, 3-veined, the lateral sepals oblique, 2.5 mm long, 2.3 mm wide, 3-veined; **petals** transversely semilunate, broadly rounded at the apex with a thickened margin, concave below a transverse callus, 1 mm long, 1.75 mm wide, 3-veined; **lip** thick, subdiscoid, 0.6 mm long, 1 mm wide, 0.9 mm deep, the apex broadly rounded, shallowly concave below the middle anteriorly with a large, rounded glenion occupying the other half of the bar, the dorsum acutely sloping downward with 1 rounded callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.2 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Napo: Guacamayo Range, alt. 1800 m, Mar. 1991, *A. Hirtz & X. Hirtz 5345* (Holotype: MO), C. Luer illustr. 20481.

This species is apparently endemic on the eastern slopes of the Andes of central Ecuador. It is distinguished by slender ramicauls that are longer than narrowly elliptical leaves, and a crowded raceme of small, dark red flowers about as long as the leaf. The sepals are broadly ovate and obtuse, and the transverse petals are thickened in the margin with a transverse callus. Most distinctive is the large, round glenion that occupies half the anterior surface of the lip. The lip is shallow with a sharply sloping base.

171. **Stelis membranacea** Luer & Hirtz, sp. nov.

Ety.: From the Latin *membranaceus*, "membranous," referring to the sepals.

Planta mediocris caespitosa, racemo subflexuoso disticho folio elliptico plus minusve aequilongo, sepalis latissime ovatis obtusis glabris, petalis transverse ovatis, labello parvo late rotundo antice concavo marginibus infra medium plicatis, ad basim profunde reflexis distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 2.5-3 cm long, enclosed by a tubular sheath from below the middle, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical, petiolate, obtuse, 9-11 cm long including the petiole 2-3 cm long, the blade 1.9-2 cm wide, cuneate below into the petiole. **Inflorescence** an erect, lax, distichous, subflexuous, several-flowered raceme with 3-4 flowers open simultaneously, 12 cm long including the peduncle 3-3.5 cm long, with a slender spathe ca. 0.5 cm long near the apex of the ramicaul; floral bracts broadly oblique, obtuse, 3-3.5 mm long; pedicels 1.5 mm long; ovary 2 mm long; **sepals** yellow, glabrous, thinly membranous, expanded, tranversely ovate, obtuse, connate nearly to the middle, the dorsal sepal 5 mm long, 6.5 mm wide, 5-veined, the lateral sepals oblique, 4 mm long, 6 mm wide, 4-veined; **petals** light green, thin, transversely ovate, 1 mm long, 2.3 mm wide, 3-veined, concave with the apical margin thickened and with a narrow, transverse callus within the margin; **lip** thick, suborbicular, 0.6 mm long, 1 mm wide, 1 mm deep, concave anteriorly with the apical margin broad and rounded, the bar with a central callus between plicate margins of the lip, the dorsum acutely deflexed below the middle, microscopically pubescent, the base truncate, hinged to a thin column-foot; **column** stout, 1.5 mm long, 1.25 mm wide, with an elongated foot, the anther and the bilobed stigma apical.

Morona-Santiago: El Pangui, cultivated at Ecuagenera, Gualaceo, 19 Apr. 2001, *A. Hirtz 7636* (Holotype: MO), C. Luer illustr. 20464.

This species of southeastern Ecuador is characterized by a loose raceme of comparatively large flowers that exceeds an elliptical, petiolate leaf. The sepals are broadly expanded, transversely ovate, and thinly membranous in texture. The petals are large and transverse with a narrow, transverse callus. The lip is small and concave anteriorly with the apex broadly rounded. The margins are folded upon themselves above the base that is acutely deflexed.

172. **Stelis mendozae** Luer, sp. nov.

Ety.: Named for the late Hartman Mendoza, co-collector of this species.

Planta mediocris caespitosa, racemo subflexuoso disticho folio elliptico plus minusve aequilongo, bracteis floralium plus minusve conspicuosis, sepalis ellipticis obtusis pubescentibus, petalis rotundis uninervis, labello subquadrato antice concavo breviapiculato ad basim pubescenti distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1.5-3 cm long, enclosed by 2 tubular sheaths, and another at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 3.5-7.5 cm long including the petiole ca 1 cm, the blade 1-1.6 cm wide, cuneate below into the petiole. **Inflorescence** an erect, sublax, distichous, subflexuous, more or less many-flowered raceme with many flowers open simultaneously, 5-8 cm long including the peduncle 1.5-2 cm long, with a slender spathe ca. 0.5 cm long at the apex of the ramicaul; floral bracts oblique, acute, 3-4 mm long; pedicels 1.5 mm long; ovary 1 mm long; all floral parts yellow, **sepals** pubescent within, elliptical, obtuse, connate basally, the dorsal sepal 2.3 mm long, 2 mm wide, 3-veined, the lateral sepals similar, 2.2 mm long, 2 mm wide, 3-veined; **petals** thin, round, the apical margin thickened, 1 mm long, 1.25 mm wide, 1-veined, shallowly concave; **lip** thick, subquadrangular, 0.6 mm long, 0.8 mm wide, 0.4 mm deep, concave anteriorly with the apical margin truncate, shortly apiculate, the bar with a linear glenion continuous from the dorsum, the dorsum shortly pubescent, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: above Río Quebrada Honda south of Yangana toward Valladolid, alt. 2200 m, 27 Mar. 1986, *D. D'Alessandro & H. Mendoza 573* (Holotype: MO), C. Luer illustr. 20462.

Although related to the *S. aprica*-complex with a type-B lip, this species is superficially similar to sympatric *S. loxensis*. Short-pedicellate flowers are borne in a subflexuous raceme with proportionately large floral bracts. The sepals are obtuse and pubescent; the petals are round, concave and single-veined; and the subquadrate lip is shortly apiculate with the dorsum pubescent.

173. **Stelis millenaria** Luer, sp. nov.

Ety.: From the Latin *millenarius*, "a thousandth," referring to the one-millimeter-long sepals.

Planta mediocris caespitosa, folio ovato acuto cauli breviore, racemis duobus (semper?) distichis folio brevioribus, floribus minutissimis, sepalis longivillosis suborbicularibus, petalis transversis uninervis, et labello bicalloso distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 10 cm long, with a short, tubular sheath near the middle and 2 others about the base. **Leaf** erect, coriaceous, narrowly ovate, acute, petiolate, 7 cm long including the petiole 1 cm long, 1.7 cm wide, cuneate below into the petiole. **Inflorescence** 2 (always?), sublax, simultaneously several-flowered racemes, 3.5-4 cm long including the peduncle ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** yellow-green, long-villous within with the hairs disheveled, broadly ovate-suborbicular, obtuse, faintly 3-veined, connate below the middle, 1 mm long, 1.2 mm wide; **petals** yellow-green, transversely oblong, thickened along the transverse apex, shallowly concave, 0.3 mm long, 0.6 mm wide, 1-veined; **lip** yellow-green, thickly suboblong, 0.5 mm long, 0.5 mm wide, 0.3 mm deep, concave anteriorly within the broadly obtuse, apical margin, the bar thick, cleft anteriorly with a glenion, the dorsum flat, microscopically pubescent at the base, the base truncate, hinged to the obsolescent column-foot; **column** stout, 0.5 mm long, 0.5 mm wide, with the anther and bilobed stigma apical.

Zamora-Chinchipe: Cordillera del Condor, east of Los Encuentros, near Paquisha military camp, alt. 1600 m, 1987, flowered in cultivation in Chamblee, GA, 29 Nov. 1991, *F L Stevenson 91-1029-2* (Holotype: MO), C. Luer illustr. 20433a; between Loja and Zamora, east of the pass, alt. 1600-1950 m, May 1985, *D. D'Alessandro 464* (MO); Romerillo Alto, on Río Jamboe, alt. 1500 m, May-June 1986, *D. D'Alessandro 722* (MO).

This species is closely related to *S. bicarinata*, but the latter differs with twice larger all vegetative dimensions, and nearly thrice larger floral dimensions. The minute sepals of *S. millenaria* are suborbicular, and one millimeter long excluding the disheveled, long-ciliate margin. The petals are single-veined, and the apex of the twice smaller lip is broadly rounded instead of shortly acuminate.

174. **Stelis mundula** Luer & Hirtz, sp. nov.

Ety.: From the Latin *mundulus*, "neat," referring to qualities of the inflorescence.

Planta parva mediocrisve caespitosa, racemo congesto foliis ellipticis longiore, sepalis glabris late ovatis obtusis, petalis transverse semilunatis incrassatis, et labello subtriangulo obtuso dorso cum callis tribus minutis distinguitur.

Plant small to medium in size, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 1.5-2.5 cm long, enclosed by 2 loose, tubular sheaths and another at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 5-7 cm long including a petiole ca. 1 cm long, the blade 10-13 mm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested, simultaneously several-flowered raceme, 9-11 cm long including the peduncle 3-4 cm long, from an annulus below the apex of the ramicaul, with a spathe 5 mm long; floral bracts oblique, infundibular, obtuse, 3 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** expanded, glabrous, green, broadly ovate, broadly obtuse, connate below the middle, the dorsal sepal 4 mm long, 4.5 mm wide, 3-veined, the lateral sepals 3.5 mm long, 4 mm wide, 3-veined; **petals** transversely semilunate, broadly rounded at the apex with a thickened margin, concave below a transverse callus, 1.25 mm long, 1.75 mm wide, 3-veined; **lip** thick, transversely subtriangular, 0.6 mm long, 1.2 mm wide, 1 mm deep, the apex obtuse, shallowly concave anteriorly with a superficial glenion, the dorsum with 3 small, rounded calli, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: above Zamora, alt. 1000 m, 24 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16135* (Holotype: MO).
Morona-Santiago: southeast of Sigsig toward Chiguinda, alt. 1600 m, 13 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 13872* (MO); Chiviaza, east of Limón, alt. 1300 m, 21 Oct. 1999, *A. Hirtz, E. Sánchez & S. Marin 7037* (MO).

This species of southeastern Ecuador has no distinctive character, but it is distinguished by the combination of features. The ramicaul, clad in loose, tubular sheath, is shorter than the narrowly elliptical leaf. The crowded raceme of medium-sized flowers surpasses the leaf about half the length. The sepals are glabrous, broadly ovate and three-veined. The semilunate petals are large, overlapping above the column, with a thick, curved margin. The lip is small, triangular and obtuse with three small calli on the dorsum.

175. **Stelis nambijae** Luer & Hirtz, sp. nov.
Ety.: Named for the community of Nambija in the Cordillera del Condor where the species was collected.

Planta parva mediocrisve repens, racemo congesto foliis ellipticis petiolatis subaequilongo, sepalis ciliatis late ovatis obtusis, petalis transverse semilunatis marginibus leviter incrassatis, et labello globoso apice rotundo obtuso dorso cum callo erecto grandi postice pubescenti distinguitur.

Plant small to medium in size, epiphytic, repent, the rhizome stout, branching, 1-2 cm long between ramicauls; roots slender. Ramicauls erect, stout, 2-3.5 cm long, enclosed by 2 loose, tubular sheaths and another at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 4.5-6 cm long including a petiole ca. 1 cm long, the blade 1.2-1.7 mm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, many-flowered raceme, 5-6 cm long including the peduncle 1-2 cm long, with few flowers open simultaneously, from an annulus below the apex of the ramicaul, with a spathe ca. 5 mm long; floral bracts oblique, infundibular, obtuse, 3 mm long; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** expanded, lavender with white cilia, broadly ovate, obtuse, connate below the middle, the dorsal sepal 4.5 mm long, 4.5 mm wide, 5-veined, the lateral sepals 3.5 mm long, 4.2 mm wide, 4-veined; **petals** transversely semilunate, broadly rounded at the apex with a narrowly thickened margin, concave, 1.5 mm long, 2.5 mm wide, 3-veined; **lip** thick, subglobular, 0.75 mm long, 1.25 mm wide, 1 mm deep, the apex obtuse, broadly rounded, shallowly concave anteriorly, the bar filled with a proportionately large, protuberant callus with a small glenion at the top, long-pubescent on the posterior surface, base truncate, hinged to the base of the column; **column** stout, 1 mm long, 2 mm wide across oblong, expanded stigmatic lobes, the foot obsolescent, the anther and the stigma apical.

Zamora-Chinchipe: Cordillera del Condor, above Nambija, alt. 1300 m, June 1991, *A. Hirtz 5509* (Holotype: MO); C. Luer illustr. 20428a; without collection data, cultivated at Ecuagenera, Gualaceo, 5 Mar. 2001, *C. Luer 19720* (MO).
Morona-Santiago: El Pangüi, cultivated by Ecuagenera, Gualaceo, 17 Apr. 2001, *A. Hirtz 7696* (MO).

This species from the Cordillera del Condor in southeasternmost Ecuador is distinguished by a stout, creeping rhizome; elliptical, petiolate leaves; and a raceme shorter than or nearly equaling the leaf in length. The sepals are lavender and white-ciliate, broadly ovate, obtuse and 5-veined. The petals are semilunate and three-veined. The lip is distinctive with a proportionately large, erect, protruding callus (the modified bar) that fills the center above the concave, rounded apex.

176. **Stelis opimipetala** Luer & Hirtz, sp. nov.
Ety.: From the Latin *opimipetala*, "with fat petals," referring to the large, thick petals.

Species haec *S. globuliferae* Luer & Hirtz similis, sed floribus majoribus, petalis ciliatis majoribus supra columnam imbricatis et labello peltato differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5-7 mm long, enclosed by 2 loose, tubular sheaths. **Leaf** erect, thickly coriaceous, broadly elliptical, obtuse, 15-33 mm long including a petiole 3-10 mm long, the blade 9-10 mm wide, cuneate below into a petiole. **Inflorescence** an erect to suberect, loose, flexuous, successively few-flowered raceme, to 3 cm long including the peduncle ca 1 cm long, from the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 2 mm long; ovary 2 mm long; flowers expanded, rose-colored; **sepals** densely ciliate, broadly ovate, connate basally, the dorsal sepal 4.5 mm long, 5.5 mm wide, 5-veined, the lateral sepals oblique, 4 mm long, 4.5

mm wide, 4-veined; **petals** thickly reniform, 1.2 mm long, 2.2 mm wide, 3-veined, broadly rounded above the shortly concave base; **lip** thick, subcordate-peltate, obtuse, 0.8 mm long, 1.5 mm wide, 1.25 mm deep, the anterior surface flat, featureless, the dorsum with a central, pubescent callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Cordillera del Condor, east of Mayaicu, alt. 1300 m, 20 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13508* (Holotype: MO).
Pastaza: north of Mera, alt. 1400 m, 23 Dec. 2002, *L. Jost & S. Dalström 4822* (MO).
Bolívar: west of Salinas, alt. 1150 m, 12 Mar. 1991, *C. Luer, J. Luer, A. Hirtz et al. 15007* (MO).
Morona-Santiago: north of Macas, west of Río Palora, alt. 1200 m, 1 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19582* (MO); Cordillera del Condor, east of Chuchumbletza, alt. 1650 m, 21 May 1988, *C. Luer, A. Hirtz, A. Andreetta & W. Teague 13533* (MO).

This little species from the Cordillera del Condor is characterized by a loose, flexuous, few-flowered raceme that approaches the length of the elliptical leaves. The flowers are proportionately large with broad, obtuse, finely ciliated sepals, and broad, flat, kidney-shaped petals that overlap above the column. The shield-shaped lip is flat anteriorly and obtuse with a pubescent callus on the dorsum.

177. **Stelis paniculata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *paniculatus*, "tufted," referring to the densely ceaspitose habit.

Planta perparva densissime caespitosa, racemo laxo foliis ellipticis crassis multilongiore, sepalis glabris ovatis obtusis, petalis transverse obovatis margine leviter incrassato, et labello subgloboso apice rotundo obtuso antice concavo distinguitur.

Plant very small, epiphytic, densely caespitose, roots fascicled. Ramicauls erect, proportionately stout, 1-2 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, suberect, or horizontal, thickly coriaceous, elliptical, subacute to obtuse, apiculate, 10-15 mm long, 3 mm wide, 1-2 mm thick, cuneate below into the base. **Inflorescence** a flexible, subflexuous, successively many-flowered raceme, to 6 cm long including a peduncle ca. 1 cm long, with 1-2 flowers open simultaneously, from an annulus below the apex of the ramicaul; floral bracts oblique, infundibular, 0.75 mm long; pedicels 0.75 mm long; ovary 0.75 mm long; **sepals** yellow or purple, expanded, glabrous, subequal, broadly ovate, obtuse, connate below the middle, the dorsal sepal 1 mm long, 1 mm wide, 3-veined, the lateral sepals 1 mm long, 0.9 mm wide, 3-veined; **petals** purple, transversely obovate, broadly rounded at the apex with a narrowly thickened margin, concave, 0.4 mm long, 0.75 mm wide, 1-veined; **lip** purple, subglobular, 0.3 mm long, 0.5 mm wide, 0.5 mm deep, the apex obtuse, broadly rounded, deeply concave anteriorly with the glenion, the bar with central part higher than margins; base truncate, hinged to the base of the column; **column** stout, 0.5 mm long and wide, stigmatic lobes expanded, the foot obsolescent, the anther and the stigma apical.

Morona-Santiago: along new road between Mendez and Morona, alt. <1000 m, 19 Jan. 1989, *A. Hirtz, A. Andreetta & S. Ortega 4124* (Holotype: MO), C. Luer illustr. 20447.

This species from southeastern Ecuador is distinguished by a dense cluster of very small, thick, elliptical leaves, and an elongating, flexuous, successively many-flowred raceme. The broadly ovate sepals of the tiny flowers are one millimeter long. The petals are transverse and single-veined. The lip is subglobose and concave anteriorly.

178. **Stelis papulina** Luer & Dalström, sp. nov.

Ety.: From the Latin *papulinus*, "with papules," referring to the tips of the sepals.

Planta mediocris caespitosa racemo laxe subflexuoso folio plus minusve longiore, sepalis late ovatis ad apices minutissime papulosissimis, petalis transversis concavis et labello suborbiculato antice concavo distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1.5-2 cm long, with a loose, tubular sheath from below the middle, and 1-2 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 4-7.5 cm long including a petiole 1-2 cm long, the blade 1-1.5 cm wide, cuneate below into the petiole. **Inflorescence** an erect, loose, subflexuous, successively flowered raceme, 7-10 cm long including the peduncle 3 cm long, from near the apex of the ramicaul; floral bracts broadly infundibular, obtuse, 2.5 mm long, 2 mm wide; pedicels 1.5 mm long; ovary 1.5 mm long; **sepals** "tannish yellow," glabrous but minutely papillose on the margins at the apex, obtuse with sides recurved, ovate, connate basally, the dorsal sepal 5 mm long, 5 mm wide, 5-veined, the lateral sepals

oblique, 4 mm long, 4.5 mm wide, 4-veined; **petals** transversely oblong, concave below the broadly obtuse, thickened margin, 1 mm long, 2 mm wide, 3-veined; **lip** suborbicular, thick, 0.8 mm long, 1.3 mm wide, 1 mm deep, concave anteriorly, broadly rounded, the bar with an elevated glenion, the dorsum convex, pubescent, the base decurved, hinged to a short column-foot; **column** stout, 1 mm long, 1.5 mm wide, the anther and the bilobed stigma apical.

Napo: wet forest along Río Borja, alt. 1700 m, 16 Feb. 1990, *S. Dalström & L. Årnby 1351* (Holotype: MO), C. Luer illustr. 20460.

This species, apparently rare and confined to the eastern slopes of the Andes of central Ecuador, is distinguished from all others of the genus by minutely papillose margins of the sepals at their apices. The flowers are produced successively on a loose, subflexuous raceme that eventually surpasses the leaf. The sepals are broadly ovate, the dorsal larger than the laterals, and the petals are transverse and concave. The lip is suborbicular, concave anteriorly with an elevated glenion.

179. **Stelis peduncularis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *peduncularis*, "with a remarkable peduncle," referring to the inflorescence.

Species haec *S. congestae* Luer & Hirtz affinis, sed ramicaulibus foliis anguste ellipticis brevioribus foliis duplolongiore, racemo congestissimo, sepalis latioribus et bracteis floralium longioribus distinguitur.

Plant small to medium in size, epiphytic, densely caespitose; roots filiform. Ramicauls erect, slender, 1.5-2.5 cm long, enclosed by a tubular sheath from below the middle, and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 4-5.5 cm long including a petiole ca 1 cm long, the blade 0.8-1.1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, very congested, simultaneously many-flowered raceme, ca. 5 cm long, borne by a slender peduncle ca. 10 cm long from below the apex of the ramicaul; floral bracts infundibular, oblique, acute, 3-4 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** expanded, purple, glabrous externally, cellular pubescent within, broadly ovate, obtuse, connate to near the middle, the dorsal sepal 2 mm long, 3 mm wide, 3-veined, the lateral sepals oblique, 2 mm long, 2.5 mm wide, 3-veined; **petals** purple, thick, transversely ovate, shallowly concave, the apex broadly rounded with a thickened margin, 1 mm long, 1.5 mm wide, 3-veined, concave below a transverse callus; **lip** purple, thickly triangular-subquadrate, 1 mm long, 1.25 mm wide, 0.8 mm deep, shallowly concave above the thickened margin of the obtuse apex, the bar thick, with a glenion, the dorsum with 3 rounded calli, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.25 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: new road from Macas to Guamote, alt. 1600 m, 1 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19590* (Holotype: MO).

This species occurs in the same area as *S. congesta* with which it is closely allied, but differing in several respects. The ramicauls are much shorter in length with similar narrowly elliptical leaves. The inflorescence of *S. peduncularis* far exceeds the leaves with a peduncle twice as long as the leaves. The floral bracts are distinctly longer. The raceme is very congested with overlapping, rounded flowers with proportionately broader sepals. The transverse callus of the petals is thick; otherwise the petals and lip are similar.

180. **Stelis pisinna** Luer & Hirtz, sp. nov.

Ety.: From the Latin *pisinnus*, "tiny," referring to size of the habit and flowers.

Planta perparva repens, racemo laxe flexuoso plurifloro foliis ellipticis duplolongiore, sepalis ovatis obtusis longipubescentibus, petalis tenuibus transversis uninervis latiore quam longiore, et labello longiore quam latiore distinguitur.

Plant very small, epiphytic, repent, the rhizome 2-3 mm long between ramicauls; roots slender. Ramicauls ascending-erect, slender, 5-10 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, subacute to acute, petiolate, 15-30 mm long including a petiole 3-5 mm long, 3-4 mm wide, cuneate below into the petiole. **Inflorescence** an erect, flexuous, sublax, simultaneously several-flowered raceme 3.5-4 cm long including the peduncle 1.5-2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1 mm long; pedicels 0.75 mm long; ovary 0.75 mm long; flowers minute, purple; **sepals** glabrous externally, long-pubescent on outer half, ovate, obtuse, faintly 3-veined, connate basally, the dorsal sepal 1 mm long, 1 mm wide, the lateral sepals 0.8 mm long, 1 mm wide; **petals** thin, suborbicular, shallowly concave, broadly rounded at the slightly thickened apex, 0.3

mm long, 0.5 mm wide, 1-veined; **lip** oblong, 0.5 mm long, 0.3 mm wide, 0.3 mm deep, concave anteriorly within the broadly obtuse, apical margin, the bar cleft below the margin into the cavity, the dorsum pubescent above the base, the base truncate, hinged to the obsolescent column-foot; **column** stout, 0.5 mm long, 0.5 mm wide, with the anther and bilobed stigma apical.

Zamora-Chinchipe: along road south of Zamora toward Zumba, alt. 1100 m, 3 Feb. 1987, *C. Luer, J. Luer & A. Hirtz 12603* (Holotype: MO); along Río Jamboe south of Zamora, alt. 1250 m, 22 Jan. 1992 *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16115* (MO).

This tiny species, apparently endemic in southern Ecuador, is characterized by the repent habit, and narrowly elliptical leaves surpassed by a several-flowered raceme of minute, purple flowers. The sepals are broadly ovate and pubescent; the petals are thin and single-veined; and the lip is oblong, longer than wide and concave on the anterior surface.

181. **Stelis pixie** Luer & Hirtz, sp. nov.

Ety.: Named for Pixie, a mischievous sprite, for the lack of anything better.

Planta mediocris caespitosa racemo congesto disticho folio plus minusve aequilongo parvifloro sed sepalo dorsali quinque-nervoso, petalis transverse ovatis et labello nonprofundo distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-4 cm long, with a tubular sheath from below the middle, and 1-2 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute to subacute, 5-8 cm long including a petiole 1-1.5 cm long, the blade 1-1.6 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, simultaneously many-flowered raceme, 6-7.5 cm long including the peduncle 1.5-2 cm long, from a spathe 7 mm long near the apex of the ramicaul; floral bracts proportionately large, oblique, acute, 2 mm long; pedicels 0.5 mm long; ovary 0.75 mm long; flowers yellow, **sepals** glabrous, elliptical, obtuse, connate basally, the dorsal sepal 2.5 mm long, 1.9 mm wide, 5-veined, the lateral sepals oblique, 2 mm long, 1.8 mm wide, 4-veined; **petals** transversely ovate, concave below the broadly obtuse, thickened margin, 0.5 mm long, 0.9 mm wide, 3-veined; **lip** flattened-subquadrate, 0.5 mm long, 0.6 mm wide, 0.3 mm deep, concave anteriorly, broadly rounded, the bar with a proportionately large glenion, the dorsum flat, with a three lobed callus centrally toward the base, the base hinged to the base of the column; **column** stout, 0.5 mm long, 0.5 mm wide, the anther and the bilobed stigma apical.

Imbabura: wet forest southeast of Lita, alt. 1200 m, 11 Jan. 1992, *C. Luer, J. Luer, A. Hirtz et al. 15559* (Holotype: MO).

This species is just like so many others with little, yellow flowers, that at first it seems like "all the rest": a congested raceme about as long as an elliptical leaf. However, the sepals are unusually small to be five-veined, and the tiny petals, to be three-veined. The lip is proportionately shallow, being only 0.3 millimeters deep. The bar contains a proportionately large glenion, and the dorsum possesses a central, trilobed callus.

182. **Stelis polyantha** Luer & Hirtz, sp. nov.

Ety.: From the Greek *polyanthos*, "many-flowered," referring to the inflorescence,

Planta mediocris, racemo multifloro congestissimo folio anguste elliptico multilongiore, bracteis floralibus brevissimis, sepalis ovatis obtusis minute pubescentibus, petalis flabellatis uninervis, et labello nonprofundo subquadrato apice subapiculato.

Plant medium in size, epiphytic, caespitose to shortly ascending, the rhizome up to 5 mm long between ramicauls; roots slender. Ramicauls erect, slender, 2-4.5 cm long, enclosed by a close, tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 5-7 cm long, 0.8-1 cm wide, narrowly cuneate below into an indistinct petiole ca. 1 cm long. **Inflorescence** an erect, congested, subsecund, many-flowered raceme with most flowers open simultaneously, 16-22 cm long including the peduncle 5-6 cm long, with a slender spathe 0.8-1 cm long; floral bracts tubular, broadly obtuse, 2 mm long; pedicels 1.5 mm long; ovary 1-1.5 mm long; flowers light yellow; **sepals** expanded, minutely cellular-pubescent, ovate, obtuse, margined, the dorsal sepal 3 mm long, 2.3 mm wide, 3-veined, connate basally to the lateral sepals, the lateral sepals oblique, 2 mm long, 2 mm wide, 3-veined; **petals** transversely obovate, shallowly concave, broadly rounded at the apex, with a narrowly thickened margin, 0.75 mm long, 1 mm wide, 1-veined; **lip** shallowly subquadrate, 0.75 mm long, 0.8 mm wide, 0.25 mm deep, the apex broadly rounded, with a broad, short apiculum, shallowly concave below the bar, with a glenion, the dorsum with a low, broad, shallowly sulcate callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Imbabura: forest along the new road west of Otavalo, alt. 3000 m, 7 Feb. 1979, *C. Luer, J. Luer, A. Hirtz & R. Escobar 3881* (Holotype: MO).

This species from a high altitude in northwestern Ecuador is characterized by narrow leaves far surpassed by a slender, very congested raceme of small, light yellow flowers. The sepals are ovate and minutely pubescent, the petals are broad and single-veined, and the lip is shallowly subquadrate.

183. **Stelis portillae** Luer & Hirtz, sp. nov.

Ety.: Named in honor of José Portilla of Ecuagenera, Gualeceo, Ecuador.

Planta grandis pulchella, racemo congesto disticho folio elliptico longiore, bracteis floralibus brevissimis, sepalis late ovatis obtusis convexis, petalis planis flabellatis, et labello subquadrato apice rotundo leviter concavo.

Plant large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 5-10 cm long, enclosed by a loose, tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, elliptical, obtuse, shortly petiolate, 9-14 cm long including the petiole less than 1 cm long, the blade 3-6 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with most flowers open simultaneously, in 2 ranks, 19-24 cm long including the peduncle ca. 10 cm long, with a slender spathe 1.5 cm long; floral bracts transversely annular, broadly obtuse, 1.5-2 mm long; pedicels 1.5 mm long; ovary 2 mm long; **sepals** expanded, rose-purple, glabrous but microscopically cellular, ovate, obtuse, convex, the dorsal sepal 3.5 mm long, 3 mm wide, 5-veined, connate basally to the lateral sepals, the lateral sepals oblique, 3 mm long, 2.75 mm wide, 5-veined; **petals** purple, flabellate-hastate with rounded angles, smooth, shallowly concave rounded apex, 1 mm long, 1.5 mm wide, 3-veined; **lip** purple, subquadrate, 0.75 mm long, 1.25 mm wide, 1 mm deep, the apex broadly rounded, shallowly concave below the bar with an ill-defined glenion, the dorsum featureless, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Cordillera del Condor, Nambija, alt. 1700 m, cultivated by Ecuagenera, Gualaceo, 2 Feb. 2002, *A. Hirtz 8022* (Holotype: MO), C. Luer illustr. 20204.

This handsome species is closely allied to *S. pachyphyta*, from which it varies with less concave, subpetiolate leaves, and smaller flowers that hug the rachis. The raceme has a distinctly different appearance as can been seen in the photographs reproduced in *Native Ecuadorian Orchids* volume 5.

Stelis portillae is characterized by a large habit with thick, subpetiolate, elliptical leaves borne by stout ramicauls with a loose sheath near the middle. The congested, two-ranked raceme of convex, rose-purple flowers exceeds the leaf in length. The sepals are broady obtuse, the petals are smooth and flabellate, and the lip is shallowly concave anteriorly with the apex rounded.

184. **Stelis prava** Luer & Hirtz, sp. nov.

Ety.: From the Latin *pravus*, "askew, awry," referring to the lateral sepals.

Planta parva caespitosa, racemo laxo paucifloro fractiflexo, sepalis late obtusis lateralibus pravis, petalis triangularibus obtusis, et labello subquadrato apice rotundo distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 8-11 mm long, enclosed by 2-3 tubular, imbricating sheaths. **Leaf** erect, coriaceous, narrowly elliptical-obovate, subacute to obtuse, long-petiolate, 18-30 mm long including a petiole 5-15 mm long, the blade 5-6 mm wide, gradually narrowed below into the petiole. **Inflorescence** an erect, distichous, flexuous, successive, distantly few-flowered raceme 2.5-4 cm long including the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 1-1.5 mm long; ovary 2 mm long; flowers purple; **sepals** glabrous externally, cellular-glandular within, the dorsal sepal ovate, obtuse, 4 mm long, 4 mm wide, 5-veined, connate to the middle, the lateral sepals ovate, markedly oblique, transversely obtuse, 1.8 mm long, 3.3 mm wide, 4-veined; **petals** reniform-triangular, cellular-glandular, 0.8 mm long, 1.25 mm wide, thickened above the base to the broadly obtuse apex, shallowly concave at the base, **lip** thick, subquadrate, 0.8 mm long, 0.8 mm wide, 0.66 mm deep, shallowly concave anteriorly with the apex rounded, the dorsum with a rounded, coarsely short-pubescent callus, the base truncate, hinged to an obsolescent column-foot; **column** stout, 1 mm long, 0.8 mm wide, with the anther and the bilobed stigma apical.

Pichincha: forest between Chiriboga and Santo Domingo, alt. 1500 m, 28 May 1988, *C. Luer & A. Hirtz 13720* (Holotype: MO).

This species is apparently endemic in northwestern Ecuador. It is characterized by the small, caespitose habit and a loose, few-flowered, flexuous raceme about twice as long as the narrow leaves. The sepals are obtuse and diffusely covered within by capitate or glandular cells that are visible only with a magnifying glass. The broad dorsal sepal is more than twice as long as a lateral sepal. The lateral sepals are remarkably asymmetrical, being connate to each other for about only three-quarters of a millimeter, and connate to the dorsal sepal for more than twice as much. The lateral sepals are oblique, much broader than long with the inner half markedly reduced, which imparts an awry appearance.

185. **Stelis prolata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *prolatus*, "stretched out," referring to the elongated rhizome.

Planta parva longirepens, racemo sublaxo paucifloro fractiflexo folio elliptico longiore, sepalis late obtusis breviter pubescentibus, petalis transversis incrassatis et labello transverso obtuso distinguitur.

Plant small, epiphytic, long-repent, 20 cm long or longer, rhizomes stout, 1.5-3 cm long between ramicauls; roots slender. Ramicauls ascending-erect, stout, 12-22 mm long, enclosed by 2 loose, tubular, imbricating sheaths. **Leaf** erect, coriaceous, elliptical-obovate, subacute to acute, petiolate, 22-42 mm long including a petiole 5-9 mm long, the blade 9-15 mm wide, cuneate below into the petiole. **Inflorescence** an erect or suberect, flexuous, subdense, simultaneously several-flowered raceme 3-5 cm long including the peduncle ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1.5 mm long; ovary 0.8 mm long; **sepals** purple and glabrous externally, blue and shortly pubescent within, transversely ovate, transversely obtuse, the dorsal sepal 2 mm long, 2.75 mm wide, 3-veined, connate below the middle, the lateral sepals 1.8 mm long, 2.3 mm wide, 3-veined; **petals** red-purple, transversely ovate, 0.75 mm long, 1 mm wide, thickened above the base to the broadly obtuse apex, thickened along the margin, shallowly concave at the base, **lip** red-purple, thick, transversely oblong-ovoid, 0.5 mm long, 1 mm wide, 0.5 mm deep, shallowly concave anteriorly with the apex rounded, the dorsum with a rounded callus, the base truncate, hinged to an obsolescent column-foot; **column** stout, 1 mm long, 1 mm wide, with the anther and the bilobed stigma apical.

Sucumbíos: south of Santa Barbara, alt. 2700 m, 6 Apr. 1985, *C. Luer, J. Luer, A. & X. Hirtz 11098* (Holotype: MO); Cartagena, between El Carmelo and La Bonita, alt. 2800 m, 8 Apr. 1979, *B. Løjtnant, U. Molau & M. Madison 12021* (AAU, GB); above El Carmelo, alt. 2700 m, 17 May 1981, *C. Luer, J. Luer & A. Hirtz 6285* (SEL).
Napo: above Papallacta, alt. 3000 m, Oct. 1983, *A. Hirtz 1332* (MO, SEL).

This species is apparently endemic in northeastern Ecuador at high altitudes. It is characterized by a long-repent habit with a thick rhizome; elliptical leaves longer than the ramicauls; and a subdense, several-flowered, flexuous raceme that exceeds the leaves. The transversely ovate sepals are shiny purple externally, blue within, and shortly pubescent. The transverse petals are broad with a transverse callus, and the lip is transverse and obtuse with a rounded callus on the dorsum.

186. **Stelis ramulosa** Luer & Dalström, sp. nov.

Ety.: From the Latin *ramulosus*, "bearing small branches," referring to the prolific habit.

Planta parva mediocrisve prolificans, rhizomate elongata, racemis leviter fractiflexis folio elliptico longiore, sepalis glabris late ovatis obtusis, petalis subquadratis tenuis et labello subplano oblongo rotundo distinguitur.

Plant small to medium, epiphytic, scandent; roots slender. Ramicauls erect to suberect, slender, prolific, 0.5-4 cm long, enclosed by a loose, tubular sheath and 2-3 shorter sheaths at the base. **Leaf** erect, coriaceous, elliptical, obtuse, 12-25 mm long including a petiole 2-4 mm long, the blade 6-10 mm wide, cuneate below into the petiole. **Inflorescence** an erect, distichous, subflexuous, successively several-flowered raceme, lax below, subdense above, with 2-5 flowers open simultaneously, 3-6 cm long including the peduncle 2-4 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 2-2.25 mm long; ovary 1.25 mm long; **sepals** gray, glabrous, broadly ovate, obtuse, connate basally, the dorsal sepal 2.25 mm long, 2.5 mm wide, 3-veined, the lateral sepals oblique, 2 mm long, 2 mm wide, 3-veined; **petals** purple, transversely oblong, shallowly concave, the apex broadly rounded with a thin margin, 1 mm long, 1.5 mm wide, 3-veined; **lip** purple, oblong, round

at the apex with thin margins, 0.6 mm long, 1.3 mm wide, 1.6 mm deep, low-convex anteriorly, the short dorsum pubescent, broadly truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Loja: wet scrub forest south of Saraguro, alt. 3000-3200 m, 6 Feb. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1859* (Holotype: MO).
Tungurahua: slopes of Volcán Tungurahua above Baños, alt. 3000 m, 27 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9761* (MO); slopes of Volcán Tungurahua below the refuge, alt. 2850-3150 m, 15 Jan. 1988, *U. Molau, B. Eriksen & M. Fredrikson 2486* (GB).
Napo: between Papallacta and Cuyuja, alt. 2500 m, June 1989, *A. Hirtz & X. Hirtz 4259A* (MO).
Zamora-Chinchipe: pass east of Loja, alt. 2775 m, 21 May 1971, *B. MacBryde 332* (AMES, QCA).

This little species is known from the east slopes of the Andes where it is widely distributed but not common. It is distinguished by the long, branching habit with small, elliptical leaves borne by more or less equally long ramicauls, and doubly surpassed by a subflexuous, successively flowered raceme. The sepals are equal, ovate, and obtuse; the petals and lip are thin with a rounded apex.

187. **Stelis remifolia** Luer & Hirtz, sp. nov.

Ety.: From the Latin *remifolius*, "with oar-shaped leaves," referring to the leaves.

Species haec *S. argentatae* Lindl., affinis, sed foliis late obovatis cum ramicaulibus brevibus, racemo breviore, bracteis floralibus majoribus conspicuis distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1.5-3 cm long, enclosed by a tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, obovate, obtuse to round at the apex, petiolate, 5-7.5 cm long including the petiole 1-1.5 cm long, the blade 1.5-2.4 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with most flowers open simultaneously, 9-10 cm long including the peduncle 3-4 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 5 mm long below to 3-4 mm long above; pedicels 2 mm long; ovary 2 mm long; **sepals** purple with thin yellow margins, glabrous externally, shortly pubescent within, ovate, obtuse, the dorsal sepal 5 mm long, 5 mm wide, 3-veined, connate basally to the lateral sepal, the lateral sepals 4.5 mm long, 4.5 mm wide, 3-veined; **petals** purple, transversely ovate, concave below the broadly rounded apex, 1.6 mm long, 2.75 mm wide, 3-veined; **lip** purple, transversely oblong, 0.8 mm long, 1.8 mm wide, 1.2 mm deep, the apex broadly truncate, with a minute, acute apiculum on the central margin, the bar with a glenion, the dorsum with a low, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Cajanuma range, south of Loja, alt. 2500 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10769* (Holotype: MO).

Although related to *S. argentata*, this species is readily distinguished by the smaller habit with obovate, paddle-shaped leaves borne by short ramicauls, and conspicuous floral bracts in a raceme not much longer than the leaves. Not unlike *S. argentata*, the sepals are obtuse, minutely pubescent within, and three-veined. The petals are transversely ovate and concave. The lip is short with the apex broadly rounded and minutely apiculate.

188. **Stelis rimulata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *rimulatus*, "with a little fissure," referring to the lip.

Planta mediocris, racemo dense parvifloro folio elliptico subaequilongo, sepalis ovatis lateribus revolutis, petalis uninervis, et labello subtrilobato profunde rimata distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3-4.5 cm long, enclosed by a tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, elliptical, subacute to acute, petiolate, 7-12 cm long including the petiole ca. 1 cm long, the blade 1.2-1.9 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with most flowers open simultaneously, 9-10 cm long including the peduncle ca. 1 cm long, from an annulus below the apex of the ramicaul; floral bracts broadly tubular, acute, 2-2.5 mm long; pedicels 1.5 mm long; ovary 1 mm long; flowers light yellow, **sepals** glabrous, ovate with the sides revolute, subacute to obtuse, the dorsal sepal 3 mm long, 1.75 mm wide expanded, 3-veined, connate basally to the lateral sepals, the lateral sepals oblique, expanded nearly 90°, 2.75 mm long, 1.25 mm wide expanded, 3-veined; **petals** transversely obovate, concave below the broadly obtuse with a thickened margin, 0.5 mm long, 0.75 mm wide, 1-veined; **lip** subtriangular-subtrilobed, 0.5 mm long, 0.75 mm

wide, 0.5 mm deep, the margins dilated near the middle into indistinct lobes, contracted above into an obtuse, triangular apex, the bar taller than the sides, deeply cleft to near the apex, the dorsum with a low, rounded callus, the base truncate, hinged to the base of the column; **column** stout, 0.75 mm long, 0.8 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Esmeraldas: west of Lita toward San Lorenzo, alt. 300 m, 12 Jan. 1992, *C. Luer, J. Luer, A. Hirtz et al. 15582* (Holotype: MO).

This species from lowland, coastal Ecuador is characterized by narrowly elliptical leaves that are longer than the ramicauls, and the congested raceme of numerous small flowers is also shorter than the leaf. The nearly free sepals appear narrowly ovate with revolute sides. The petals are one-veined. The lip is distinguished by round, lobe-like margins near the middle, and the bar is high and deeply cleft.

189. **Stelis rotunda** Luer & Hirtz, sp. nov.

Ety.: From the Latin *rotundus*, "round," referring to the sepals and lip.

Planta mediocris caespitosa, racemo congesto multifloro folio elliptico petiolato apice rotundo longiore, sepalis suborbicularibus late obtusis, petalis transversis semilunatis, et labello subsphaerico distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 2-3 cm long, enclosed by a loose, tubular sheath from below the middle and another sheath at the base. **Leaf** erect, thickly coriaceous, elliptical-oblong, round at the apex, 4-6 cm long including a petiole 1.5-2 cm long, the blade 1-1.4 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, successively many-flowered raceme, with few flowers open simultaneously, 4-6.5 cm long including the peduncle ca. 1 cm long, from a slender spathe 5 mm long; floral bracts tubular, inflated, obtuse, 1.5-2 mm long; pedicels 0.75 mm long, enclosed within the bract; ovary 1 mm long; **sepals** expanded, translucent white, glabrous externally, microscopically sparsely cellular within, broadly ovate, obtuse, the dorsal sepal 2 mm long, 2.5 mm wide, 3-veined, connate below the middle, the lateral sepals oblique, 2 mm long, 2.25 mm wide; **petals** rose, transversely semilunate, 0.75 mm long, 1.6 mm wide, 3-veined, shallowly concave below the thickened, rounded apex; **lip** rose, subspherical with the apex convex, broadly rounded, 1 mm long, 1 mm wide, 1 mm deep, the margin of the bar protuberant centrally, the anterior surface of the bar slightly convex, with crystals similar to those in the margins of the petals, the dorsum with a low, large callus, the base truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Morona-Santiago: near Guarumales, alt. ca. 1650 m, 19 Apr. 2001, *A. Hirtz, X. Hirtz, H. Zelenko & R. Zloch 7721* (Holotype: MO), C. Luer illustr. 20432a.

This species, found in southeastern Ecuador, is distinguished by elliptical, petiolate leaves that are rounded at the apex, and surpassed by a successively small-flowered raceme. The widely expanded sepals are translucent white, and suborbicular. The petals are transverse with thickened margin. The lip is subspherical, slightly convex anteriorly with a broadly rounded apex.

The translucent flowers of *S. rotunda* are similar to those of the purple-flowered *S. congesta*, but the latter is distinguished by slender ramicauls much longer than the acute, elliptical leaves.

190. **Stelis schistochila** Luer & Hirtz, sp. nov.

Ety.: From the Greek *schistocheilos*, "a split lip," referring to the labellum.

Planta parva, racemo laxe paucifloro folio elliptico longiore, floribus proportione grandibus, sepalis ovatis multinervis, petalis transversis, et labello transverse oblongo transverse profunde sulcato.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 5-8 mm long, enclosed by a loose, tubular sheath from below the middle and another sheath at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 10-20 mm long including the petiole 3-4 mm long, the blade 6-8 mm wide, cuneate below into the petiole. **Inflorescence** an erect, loosely few-flowered raceme with 1-2 flowers open simultaneously, 4 cm long including the peduncle ca. 2 cm long; floral bracts rybular, subacute, 1.5 mm long; pedicels 1.5-2 mm long; ovary 2 mm long; **sepals** expanded, red-purple, glabrous, ovate, obtuse, the dorsal sepal 7 mm long, 5.25 mm wide, incompletely 7-veined, connate basally to the lateral sepals, the lateral sepals oblique, 5.5 mm long, 4 mm wide, 6-veined; **petals** red-purple, transversely oblong, concave with the apex broadly rounded and slightly thickened, 0.8 mm long, 1.2 mm wide, 3-veined; **lip** red-purple, transversely subquadrate, 0.75 mm long, 1.2 mm wide, 1.5 mm deep,

the apex thick, broadly rounded, transversely sulcate below the margin of the bar, the dorsum with a central, rounded callus that extends through the center of the bar, the base truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Esmeraldas: forest west of Lita, alt. 700 m, 12 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 15566* (Holotype: MO).

This little species from lowland, western Ecuador is characterized by proportionately large flowers borne in a loose raceme about twice longer than the elliptical leaves. The sepals are ovate and multiveined. The transverse lip is most unusual with a curved, transverse cleft below the margin of the bar extending the entire width of the lip, suggesting a broad smile.

191. **Stelis secunda** Luer & Dalström, sp. nov.

Ety.: From the Latin *secundus*, "secund," referring to the raceme with all flowers facing one side.

Planta mediocris ascendens repens, racemo erecto multifloro secundo folio elliptico petiolato longiore, sepalis anguste ovatis obtusis glabris, et labello subquadrato apiculato distinguitur.

Plant medium in size, epiphytic, ascending, repent, the rhizome stout, to 10 cm or more long, suberect, 0.1-1.5 cm long between ramicauls; roots very slender. Ramicauls ascending, slender, 2-3 cm long, enclosed by 2 close, tubular sheaths. **Leaf** erect, coriaceous, elliptical, long-petiolate, with the apex subacute to acute, 2.5-3.5 cm long including the petiole 1-1.8 cm long, the blade 0.8-1.3 cm wide, cuneate below into the slender petiole. **Inflorescence** an erect, strict, congested, secund, many-flowered raceme, with most flowers open simultaneously, 8-15 cm long including the peduncle 2.5-3 cm long, subtended by a narrow, tubular spathe 6-8 mm long, at the annulus near the apex of the ramicaul; floral bracts oblique, infundibular, acute, 3 mm long; pedicels 1.5 mm long; ovary 1.25 mm long; **sepals** dull white, glabrous, narrowly ovate, obtuse, connate near the base, the dorsal sepal 3.5 mm long, 2.5 mm wide, incompletely 3-veined, the lateral sepals similar, 3.25 mm long, 2 mm wide, incompletely 3-veined; **petals** purple, thin, transversely obovate, 0.8 mm long, 1 mm wide, faintly 1-veined, shallowly concave, the margin uneven; **lip** purple, thick, subquadrangular, 0.75 mm long, 0.6 mm wide, 0.5 mm deep, the apex obtuse with a stout apiculum, the bar concave anteriorly with a proportionately large glenion, the dorsum with a flat, pubescent callus, the base broadly truncate, hinged to the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Imbabura: above Mariano Acosta, near Nueva America, alt. 3400-3500 m, 11 Mar. 1996, *S. Dalström, S. Ingram & K. Ferrell-Ingram 2093* (Holotype: MO); Hda. Yura Cruz, north of Ibarra, alt. 3700 m, 25 May 1973, *L. Holm-Nielsen, S. Jeppesen, B. Løjtnant & B. Ølgaard 6476* (AAU, AMES, SEL); Mariano Acosta, alt. 3300 m, 1 May 2001, *A. Hirtz & X. Hirtz 7739* (MO).

This species is characterized by a short, stout, ascending rhizome with ramicauls produced at various intervals, sometimes adjacent. The leaves are elliptic and long-petiolate. The raceme is erect, densely flowered and secund, the flowers being white with a purple center. The sepals are glabrous and narrowly elliptical with the laterals more or less held forward (Section *Labiatae*). The petals are thin and single-veined; and the lip is type-B (see Icones-24, page 5).

192. **Stelis septella** Luer, sp. nov.

Ety.: From the Latin *septella*, "a little hedge," referring to the 'hedge-like' row of ramicauls.

Planta parva repens, rhizomate brevi crasso, racemo disticho sublaxo folio elliptico longiore, sepalis obtusis glabris, petalis semilunatis incrassatis et labello transverse ovoideo obtuso cum callo dorsale et margine humile bimammillata distinguitur.

Plant small, epiphytic, shortly repent, the rhizome 3-4 mm thick, 1-5 mm long between ramicauls, branching; roots slender. Ramicauls ascending, stout, 15-25 mm long, enclosed by a loose, tubular sheath and another at the base. **Leaf** erect, coriaceous, elliptical, subacute to acute, 3-4 cm long, 0.8-1 cm wide, cuneate below into the subpetiolate base. **Inflorescence** an erect, subcongested, distichous, slightly flexuous, several-flowered raceme with few flowers open simultaneously, 5-10 cm long including the peduncle 3-5 cm long, from the apex of the ramicaul; floral bracts tubular, oblique, acute, 2-3 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** expanded, glabrous, purple externally, greenish purple within, broadly ovate, obtuse, connate below the middle, the dorsal sepal 3.5 mm long, 3.5 mm wide, 3-veined, the lateral sepals oblique, 2.75 mm long, 3 mm wide, 3-veined; **petals** yellow, trans-

versely semilunate, broadly rounded, thick centrally with a thickened margin, shallowly concave above the base, 0.65 mm long, 1 mm wide; **lip** yellow, thick, transversely ovoid, 0.4 mm long, 0.8 mm wide, 0.4 mm deep, shallowly concave anteriorly, the apex rounded, the bar with a low, rounded swelling to either side on the central glenion, the dorsum with a low, rounded, central callus, the base broadly truncate, hinged to the base of the column; **column** stout, 0.4 mm long, 0.8 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma bilobed.

Morona-Santiago: lithophytic on rocky cliff between Gualaceo and the pass toward Limón, alt. 2800 m, 14 Jan. 1989, *C. Luer, J. Luer, A. & P. Jesup 13880* (Holotype: MO).

This small species of southern Ecuador is distinguished by a thick, shortly repent rhizome that bears ascending ramicauls in a close row. The elliptical leaves are surpassed by a slightly flexuous, lengthening raceme of small, dark purplish green flowers with broad obtuse sepals; thickened, semilunate petals with a thickened margin; and a transverse, obtuse lip with a rounded callus on the dorsum flanked by a pair of low mammillate calli on the margin of the bar.

193. **Stelis stevensonii** Luer, sp. nov.

Named in honor of the late F L Stevenson, past president of the American Orchid Society, who collected and cultivated this species.

Planta parva caespitosa, racemo gracili stricto foliis angustissime obovatis obtusis longiore, sepalis intus longipubescentibus ovatis, petalis transverse obovatis tenuis et labello subquadrato apice elongato plano acuto infra medium bicalloso profunde concavo distinguitur.

Plant small, epiphytic, caespitose; roots filiform. Ramicauls erect, slender, 3-3.5 cm long, enclosed by 2 tubular sheaths and another at the base. **Leaf** erect, coriaceous, narrowly obovate, obtuse, 5.5-7.5 cm long including an indistinct petiole 1 cm long, the blade 0.5 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, strict, subcongested, distichous, simultaneously many-flowered raceme, with most flowers open simultaneously, 10 cm long including the peduncle 1-1.5 cm long, from an annulus below the apex of the ramicaul with a slender spathe 4 mm long; floral bracts oblique, obtuse, 1.5-2 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** light yellow-green, glabrous externally, long-pubescent within, ovate, somewhat recurved, subacute to obtuse, similar, connate basally, the dorsal sepal 2.25 mm long, 1.5 mm wide, 3-veined, the lateral sepals 1.75 mm long, 1.25 mm wide, 3-veined; **petals** green, transversely obovate, thin, shallowly concave, the apex broadly rounded with a slightly thickened, irregular margin, 0.75 mm long, 1.3 mm wide, incompletely 3 veined; **lip** purple-brown, thickly subquadrate, 1.75 mm long, 1 mm wide, 0.6 mm deep, the apex oblong, flat, obtuse, 1 mm long, the bar below the middle, deeply cleft into a pair of shelves, deeply concave beneath, the dorsum densely short pubescent toward the base, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Cordillera del Condor, between Los Encuentros and Paquisha, alt. 1600 m, collected April 1989, flowered in cultivation in Chamblee, GA, 9 Jan. 1994, *F L Stevenson 94-0109-5* (Holotype: MO), C. Luer illustr. 20434.

This little species, known only from Stevenson's collection from the Cordillera del Condor, is distinguished by a small, caespitose habit with narrowly obovate leaves borne by shorter ramicauls. The inflorescence is a regularly spaced, two-sided raceme of small flowers with recurving, long-pubescent sepals. The petals are thin and shallowly concave. The apex of the lip is elongated and protuberant beyond a deep cavity within a cleft bar.

194. **Stelis tortuosa** Luer & Hirtz, sp nov.

Ety.: From the Latin *tortuosus*, "zigzag," referring to the raceme.

Planta parva, racemo flexuoso folio oblongo longiore, sepalis obtusis dense pubescentibus, petalis transverse ovatis uninervis, et labello subquadrato truncato apiculato ad basim dense pubescenti.

Plant small, epiphytic, caespitose; roots fine. Ramicauls erect, slender, 2-3 cm long, enclosed by a tubular sheath, and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, elliptical-oblong, subacute to obtuse, 3-4.5 cm long, including a petiole 0.5-0.8 mm long, the blade 0.8-1 cm wide, cuneate below into the petiole. **Inflorescence** an erect, flexuous, sublax, distichous, many-flowered raceme with several flowers open simultaneously, 6-8 cm long including the peduncle 2-3 cm long, with a spathe 3-4 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 2 mm long; ovary 2 mm long; **sepals** expanded, similar, yellow, suffused with rose-brown, glabrous

externally, densely short-pubescent within, ovate, subacute to obtuse, connate basally, the dorsal sepal 2.75 mm long, 2.25 mm wide, 3-veined, the lateral sepals 2.25 mm long, 2.3 mm wide, 3-veined; **petals** purple, transversely ovate, with the apex broadly obtuse with a thickened margin, shallowly concave, 1 mm long, 1.5 mm wide, 1-veined; **lip** purple, subquadrate, 0.85 mm long, 0.75 mm wide, 0.6 mm deep, the apex broadly obtuse, apiculate, concave anteriorly before the bar with a shallowly concave glenion, the basal half of the dorsum pubescent, truncate basally, hinged to the base of the column; **column** stout, 0.75 mm long, 0.75 mm wide, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Cajanuma range, south of Loja, alt. 2500 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10767* (Holotype: MO).

This little species is known from the mountains of southeastern Ecuador. It is characterized by elliptical leaves about as long as the ramicauls and exceeded by a flexuous raceme of small flowers. The sepals are ovate and densely short-pubescent within; the petals are transversely ovate and single-veined; and the lip is small, with an obtuse, apiculate apex, and pubescent toward the base.

195. **Stelis tumida** Luer & Hirtz, sp. nov.

Ety.: From the Latin *tumidus*, "a swelling," referring to the anterior callus of the bar.

Planta parva, racemo multifloro foliis ellipticis longipetiolatis multilongiore, sepalis late ovatis, petalis semilunatis et labello semidiscoideo cum callo dorsali longipubescenti et cum callo anteriore.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3 cm long, enclosed by a tubular sheath from below the middle and another sheath from near the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, long-petiolate, 3.5-4 cm long, including the slender petiole 1.5 cm long, the blade 0.7-0.9 cm wide, cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with several flowers open simultaneously, to 12 cm long including the peduncle 6-7 cm long, from the apex of the ramicaul; floral bracts oblique, acute, 2-3.5 mm long; pedicels 1.5-2 mm long; ovary 1.5 mm long; **sepals** glabrous, gray, suffused with purple, broadly ovate, obtuse, the dorsal sepal 3 mm long, 3.5 mm wide, 3-veined, connate to the lateral sepals, the lateral sepals connate basally, 2.5 mm long, 3 mm wide, 3-veined; **petals** purple, thickly lunate, cellular-glandular, with the apex broadly rounded with a broad margin, shallowly concave below, 1 mm long, 1.5 mm wide; **lip** purple, thickly semidiscoid, cellular-glandular, 1 mm long, 1.5 mm wide, 1.25 mm deep, broadly rounded at the apex, shallowly concave anteriorly with an ovoid callus replacing a glenion, the dorsum narrow, with a rounded, long-pubescent callus, hinged to the base of the column; **column** stout, 1 mm long, 1.5 mm wide, the anther and the stigmatic lobes apical, the foot obsolescent.

Pastaza: Río Negro, alt. 1100 m, cultivated at Ecuagenera, Gualaceo, 11 July 2002, *A. Hirtz 8389* (Holotype: MO), C. Luer illustr. 20222.

This small species from lowland, eastern Ecuador is characterized by small, long-petiolate leaves that are shorter than the ramicauls, all surpassed by a slender, distichous raceme. The small sepals are transversely ovate and obtuse; the petals are semilunate and cellular-glandular; and the lip is semidiscoid with a long-pubescent callus on the dorsum and an ovoid callus near the margin of the bar where a glenion would be expected to be found.

196. **Stelis viamontis** Luer & Hirtz, sp. nov.

Ety.: From the Latin *via montis*, "a mountain pass," referring to the pass east of Loja.

Planta parva caespitosa, racemo sublaxo multifloro foliis ellipticis longipetiolatis multilongiore, sepalis ovatis obtusis sepalo dorsali majore, petalis triangularibus obtusis incrassatis minute papillosis et labello transverso cum callo dorsali et glenione antice profundo distinguitur.

Plant small, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 15-30 mm long, enclosed by a tubular sheath from below the middle and another sheath from the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, 20-30 mm long, including a slender petiole 8-10 mm long, the blade 5-7 mm wide, cuneate below into the petiole. **Inflorescence** an erect, sublax, many-flowered raceme with several flowers open simultaneously, 3-5 cm long including the peduncle 1-2 cm long, with a spathe 4 mm long from the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** glabrous, light green, marginate, ovate, obtuse, connate below the middle, the dorsal sepal 3 mm long, 2.5 mm wide, 3-veined, the lateral sepals oblique, 2 mm long, 2 mm wide, 3-veined; **petals** purple, thick, triangular, cellular-papillose, with the apex obtuse, narrowly thickened on the margin, concave basally, 0.75 mm long, 0.85 mm wide; **lip** purple, trasversely oblong, cellular-glandular, 0.5 mm long, 1 mm wide, 0.6 mm deep, broadly rounded at the apex, concave anteriorly

with large, deep glenion, the margin of the bar thickened on either side of the glenion, with a round callus on the dorsum, truncate basally, attached to the base of the column; **column** stout, 0.8 mm long, 0.8 mm wide, the anther and the stigmatic lobes apical, the foot obsolescent.

Zamora-Chinchipe: cloud forest east of the pass between Loja and Zamora, alt. 2600 m, 21 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16067* (Holotype: MO).

This small species from the orchid-famous, windswept pass between Loja and Zamora is characterized by small, elliptical, petiolate leaves that are about as long as the ramicauls, and an erect raceme of nearly simultaneous, small flowers. The sepals are ovate and obtuse, the dorsal being larger than the laterals. The petals are proportionately small, broadly triangular and cellular papillose. The lip is transverse with a broadly rounded apex, a concave glenion and a round callus on the dorsum.

197. **Stelis ximenae** Luer & Hirtz, sp. nov.

Ety.: Named for Ximena Leon de Hirtz, co-collector of this species.

Planta grandis racemis paucis folio anguste elliptico dimidio longioribus, sepalis obtusis dense pubescentibus labello profunde concavo.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 10-15 cm long, with a close, tubular sheath from below the middle, and 2 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 10-15 cm long including a petiole 1-1.5 cm long, the blade 1.5-2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** 2-5 erect, congested, distichous, many-flowered racemes with many flowers open simultaneously, 3-8 cm long, flowering from the base, from an annulus below the apex of the ramicaul, with a spathe 5-7 mm long; floral bracts oblique, acute, 4 mm long; pedicels 1.5-2 mm long; ovary 1.5 mm long; **sepals** dark purple or yellow-green, glabrous externally, densely pubescent within, broadly ovate, obtuse, connate basally, the dorsal sepal 2.5 mm long, 3 mm wide, 3-veined, the lateral sepals 1.8-2 mm long, 2.5 mm wide, 3-veined; **petals** purple, transversely ovate, 1 mm long, 1.2 mm wide, 3-veined, concave below the broadly obtuse, thickened, apical margin, transversely thickened across the middle, concave below; **lip** thick, subquadrangular, 0.8 mm long, 1.2 mm wide, 1.2 mm deep, deeply concave anteriorly with a thin, rounded, apical margin, the bar with a glenion, with the dorsum slightly convex, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther and the bilobed stigma apical.

Zamora-Chinchipe: Cajanuma range, south of Loja, alt. 2500 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10773* (Holotype: MO).
Morona-Santiago: east of Sigsig, alt. 2750 m, 15 May 1988, *C. Luer, A. Hirtz, A. Andreetta, W. Teague & W. Flores 13327* (MO); between Sigsig and Chigüinda, alt. 3000 m, 11 Aug. 1990, *A. Hirtz 5044* (MO); road to Chigüinda, alt. 2200 m, 7 July 2002, *A. Hirtz, X. Hirtz, N. Hirtz & I. Acaro 8309* (MO).
Azuay: Río Collay, south of El Pan, alt. 2650-3290 m, 6 July 1943, *J.E. Steyermark 53331* (AMES); below Patacocha, between Cuenca and Machala, alt. 2900 m, 29 Jan. 1988, *U. Molau, B. Eriksen & M. Fredrikson 2730* (GB).
Loja: Rancho Ovejero, between Cumbe and Saraguro, no alt., 2 Aug. 1959, *H.G. Barclay & P. Juajibioy 8506* (AMES, COL, US).

This species from southeastern Ecuador is characterized by a few, simultaneous, many-flowered racemes that are mostly less than half as long as the narrow leaf. The sepals are broadly ovate and densely long-pubescent. The petals are transverse with round, thickened margin, and the lip is deeply concave with a thin, rounded apical margin.

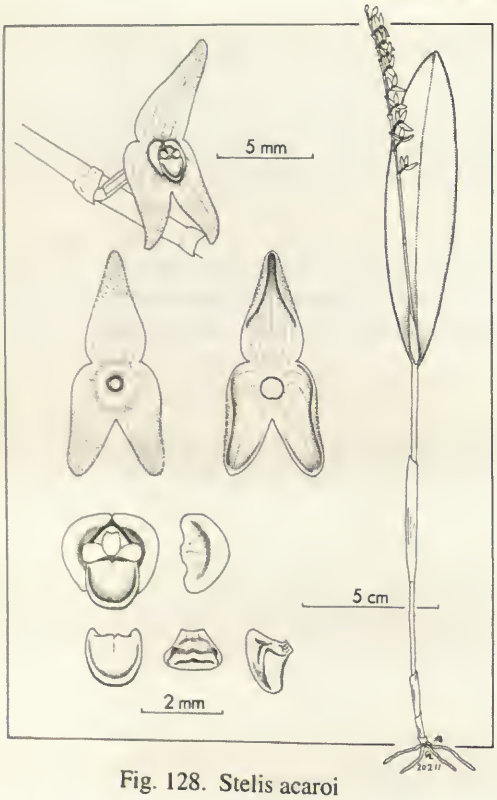

Fig. 128. Stelis acaroi

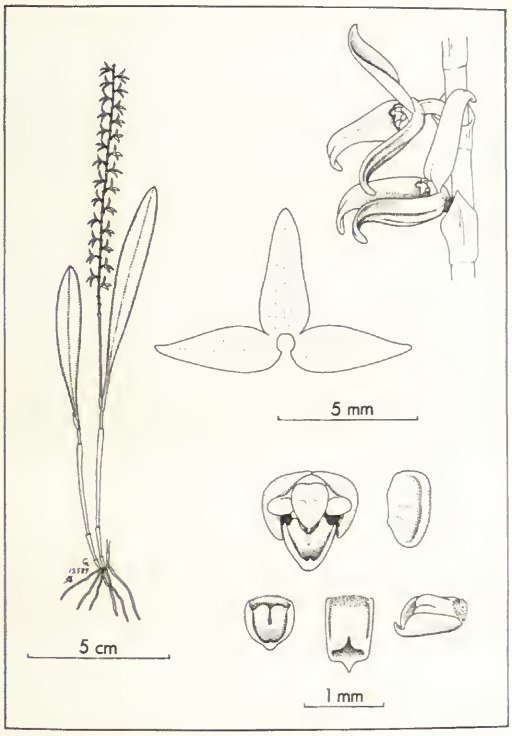

Fig. 129. Stelis acrisepala

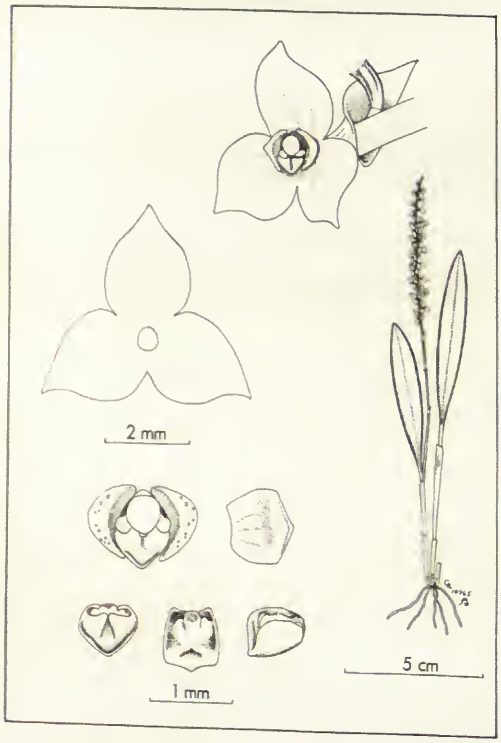

Fig. 130. Stelis acuminata

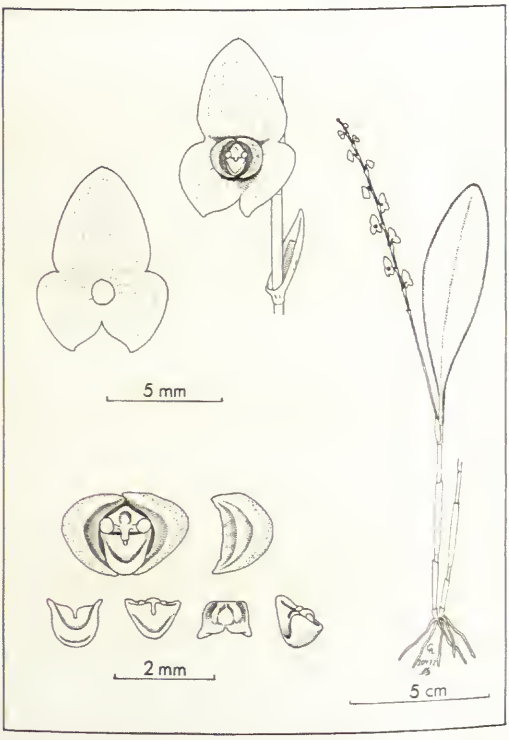

Fig. 131. Stelis aernbyae

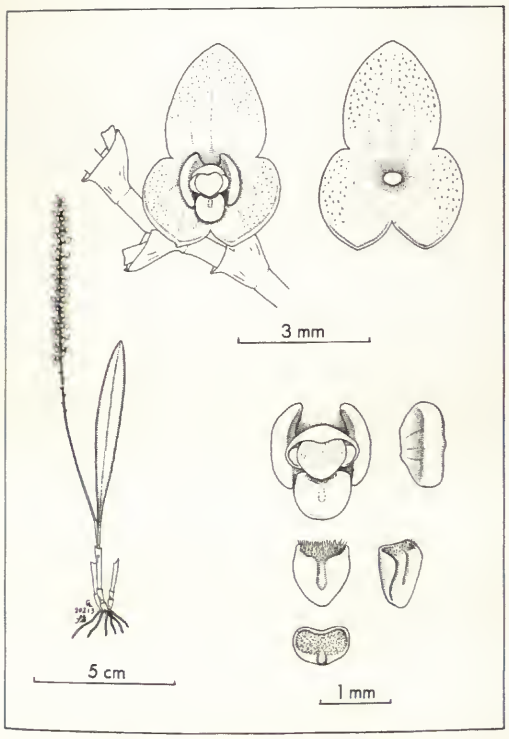

Fig. 132. Stelis alternans

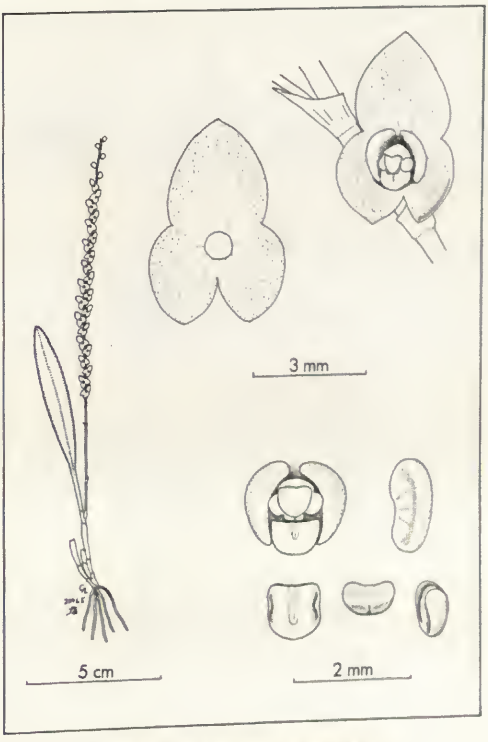

Fig. 132a. Stelis alternans

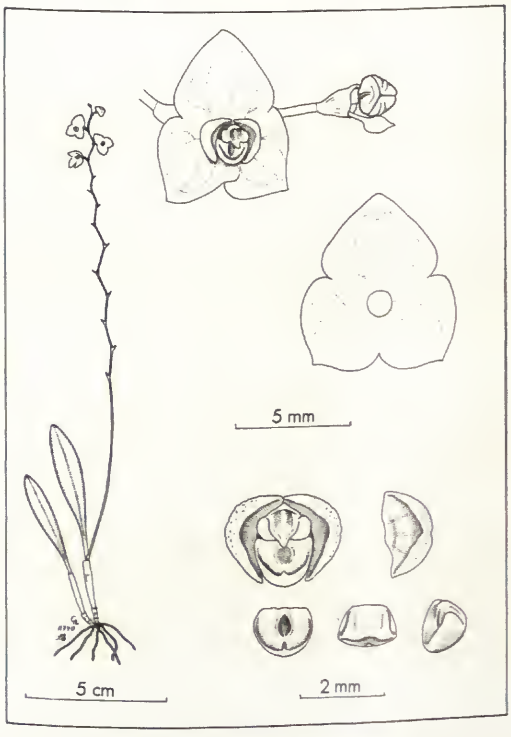

Fig. 133. Stelis bermejoënsis

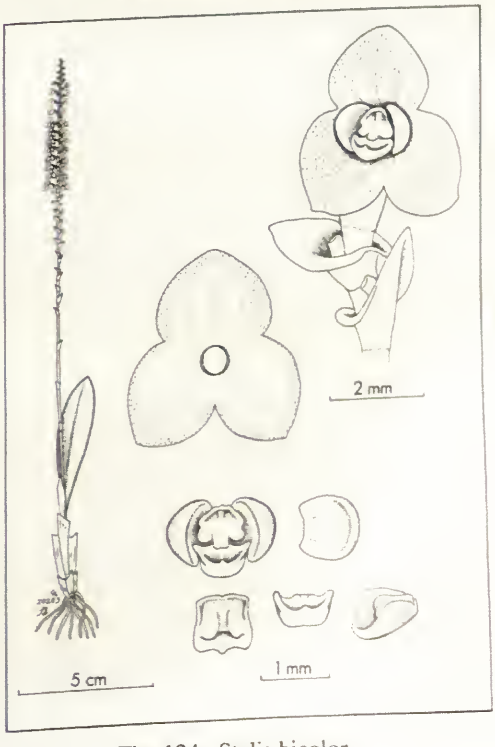

Fig. 134. Stelis bicolor

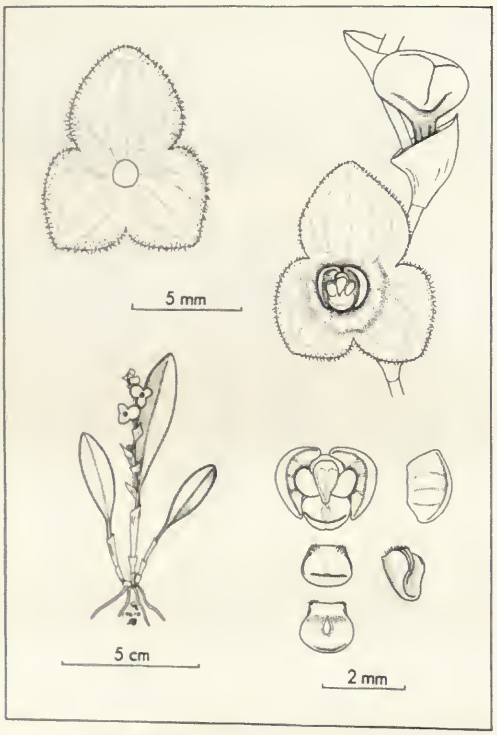

Fig. 135. Stelis brachyrachis

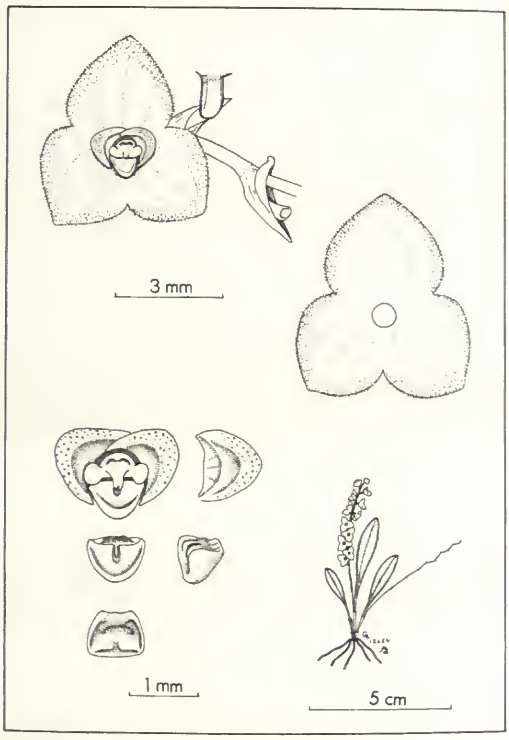

Fig. 136. Stelis calantha

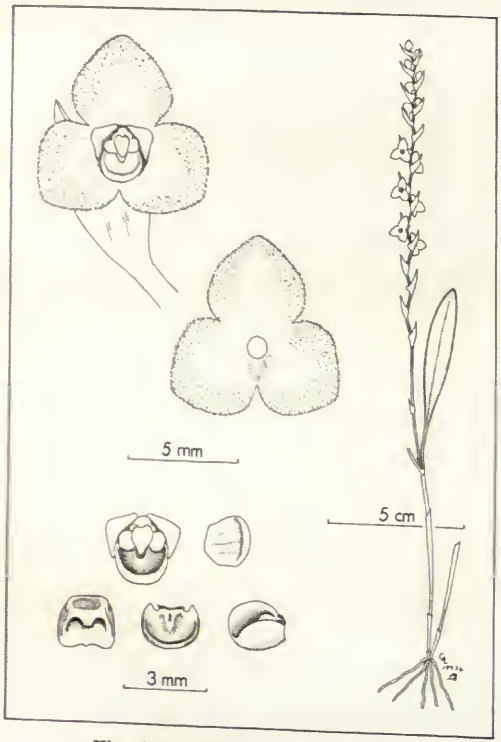

Fig. 137. Stelis calolemma

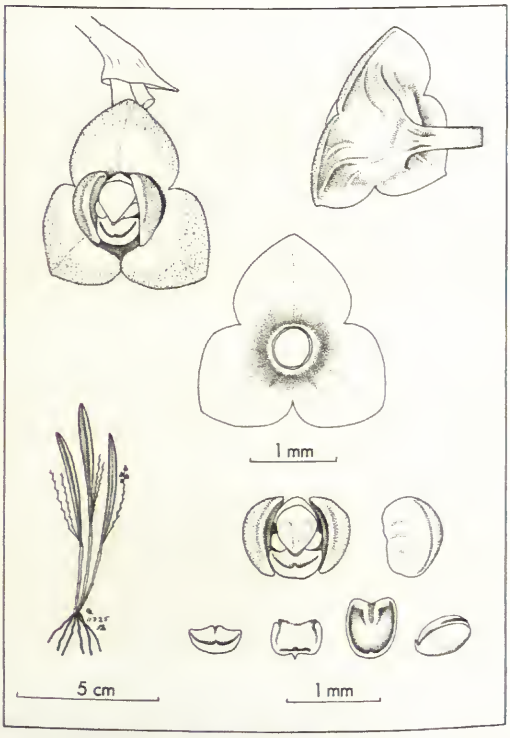

Fig. 138. Stelis calyptrata

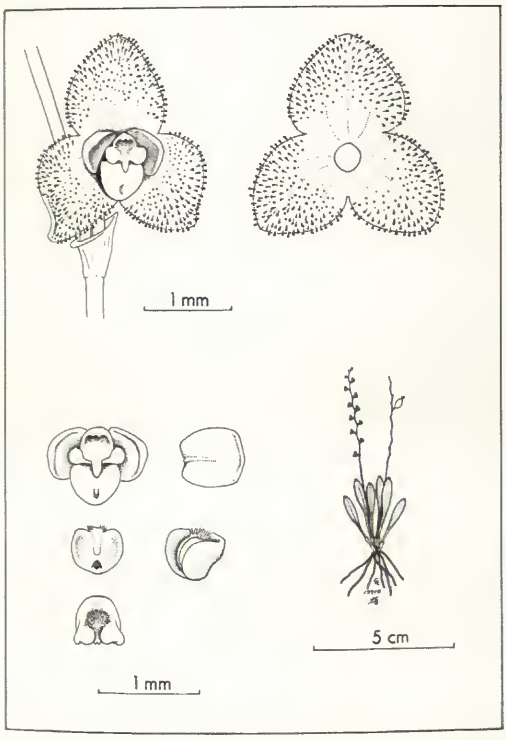

Fig. 139. Stelis capitata

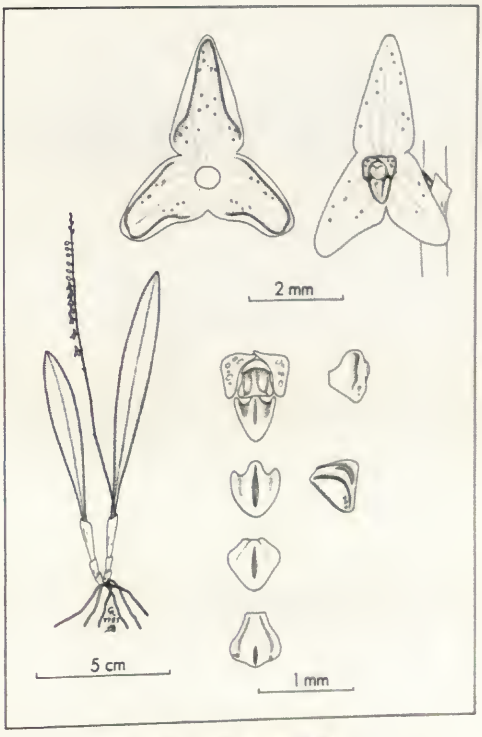

Fig. 140. Stelis caroliae

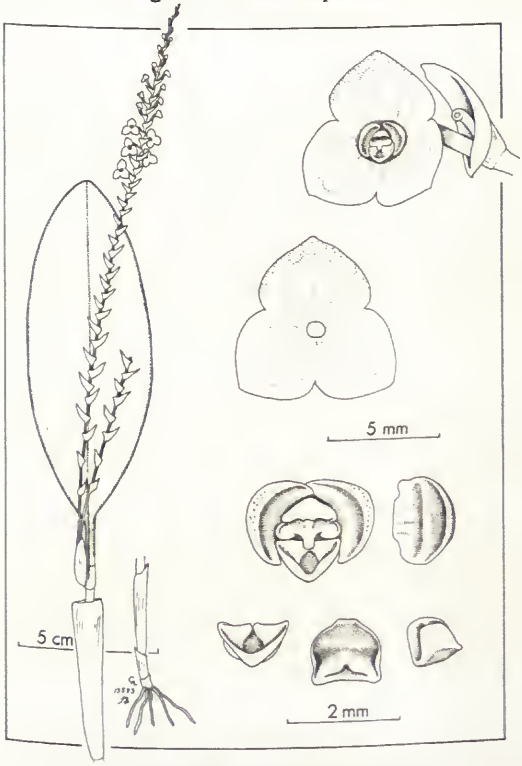

Fig. 141. Stelis cavernosa

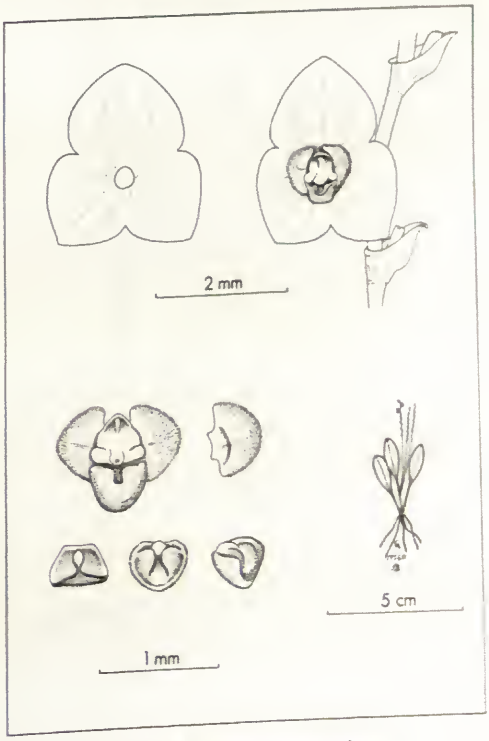

Fig. 142. Stelis ciliatissima

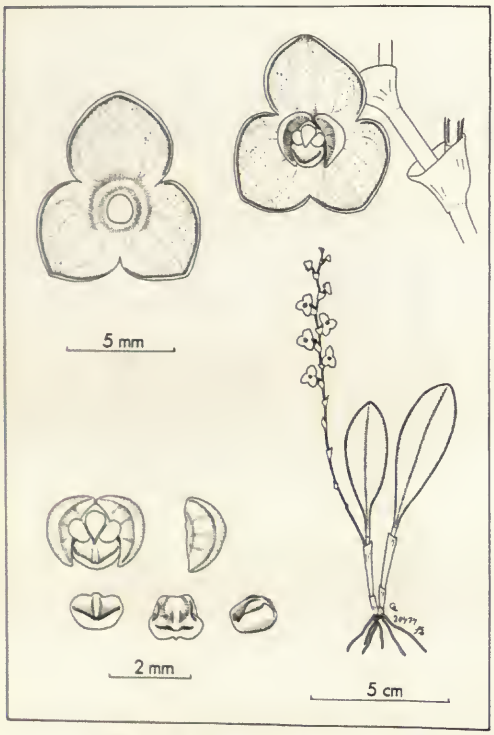

Fig. 143. Stelis ciliolata

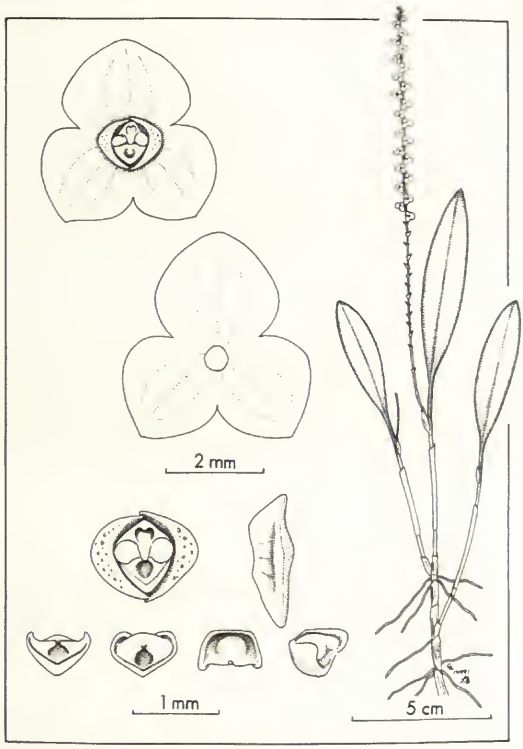

Fig. 144. Stelis cingens

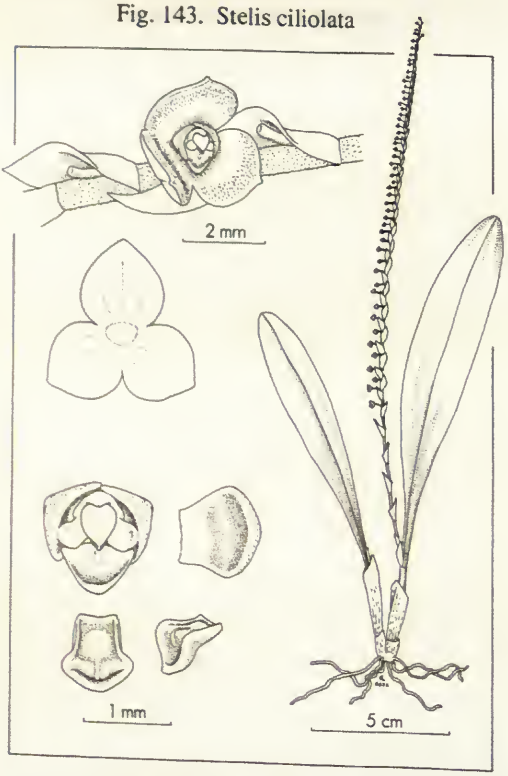

Fig. 145. Stelis clusaris

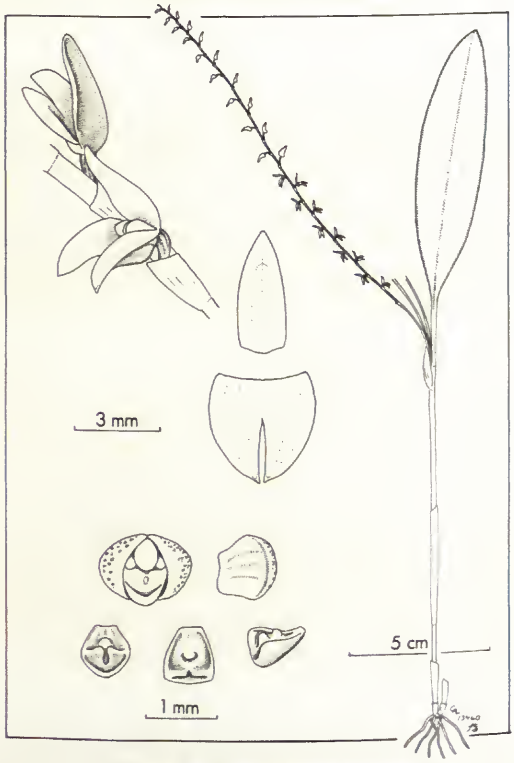

Fig. 146. Stelis condorensis

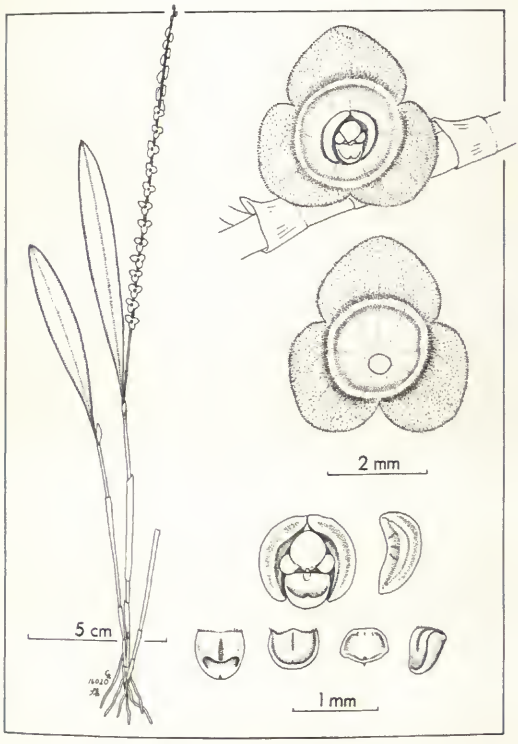

Fig. 147. Stelis coronaria

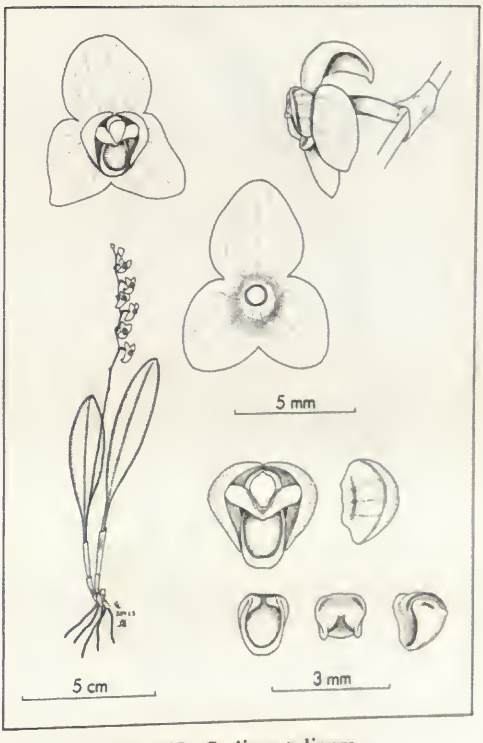

Fig. 148. Stelis cotyligera

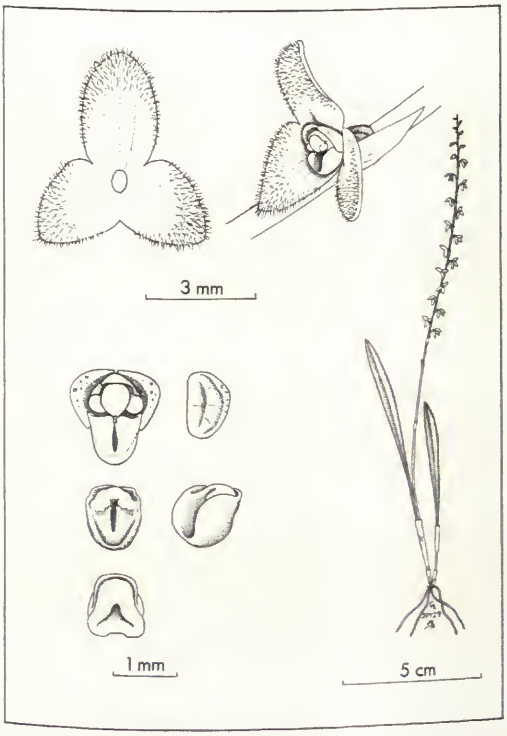

Fig. 149. Stelis cyathiformis

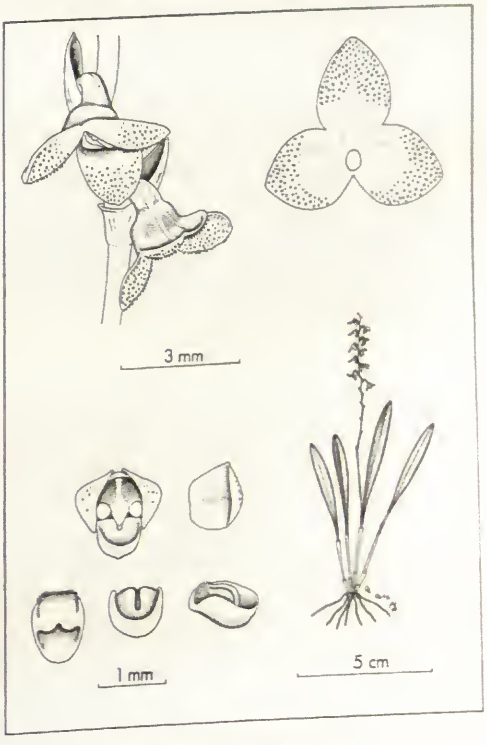

Fig. 150. Stelis decurva

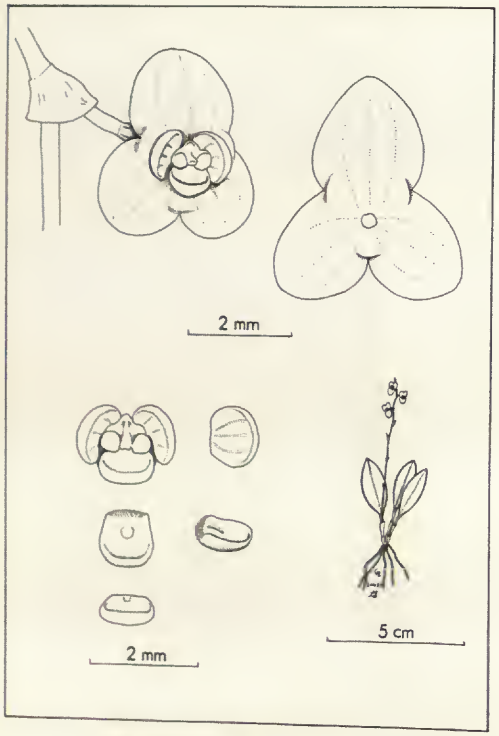

Fig. 151. Stelis discoidea

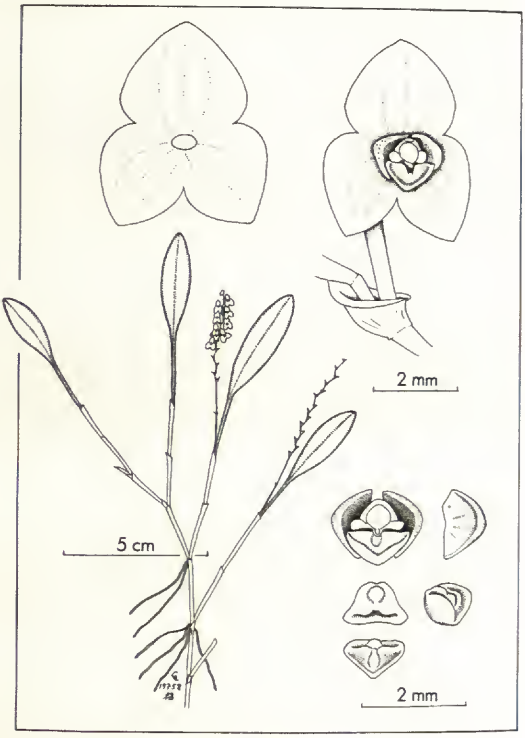

Fig. 152. Stelis epibator

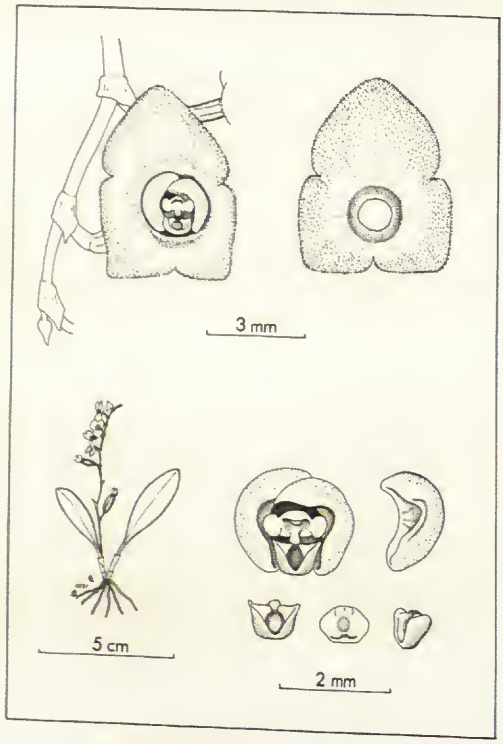

Fig. 153. Stelis esmeraldae

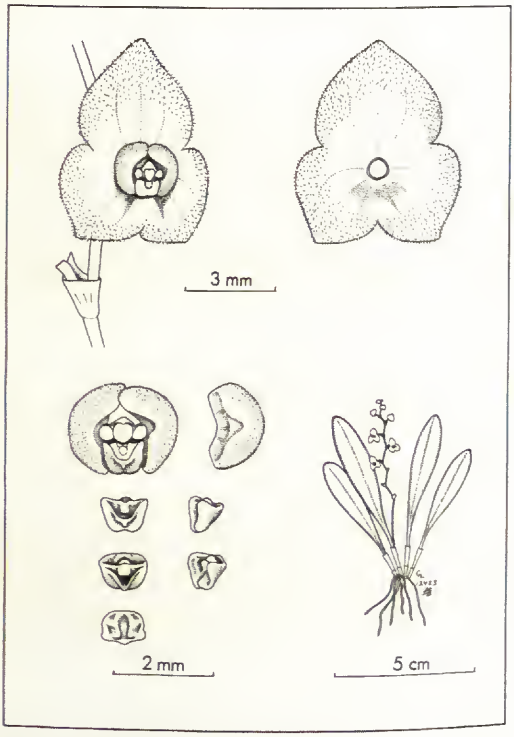

Fig. 153a. Stelis esmeraldae

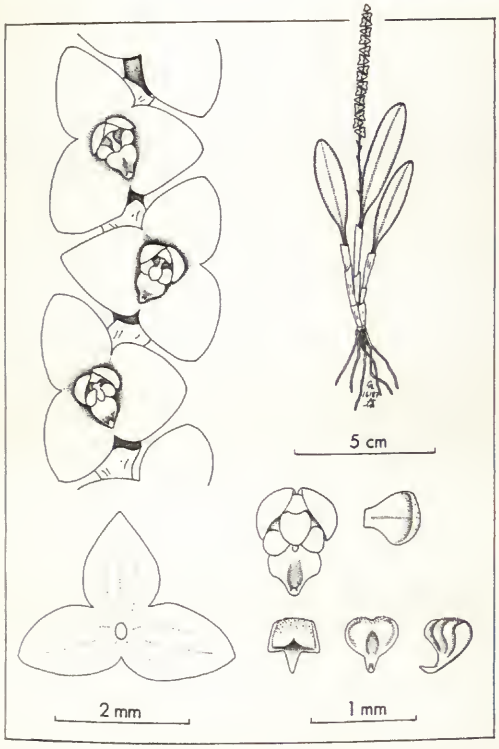

Fig. 154. Stelis exacta

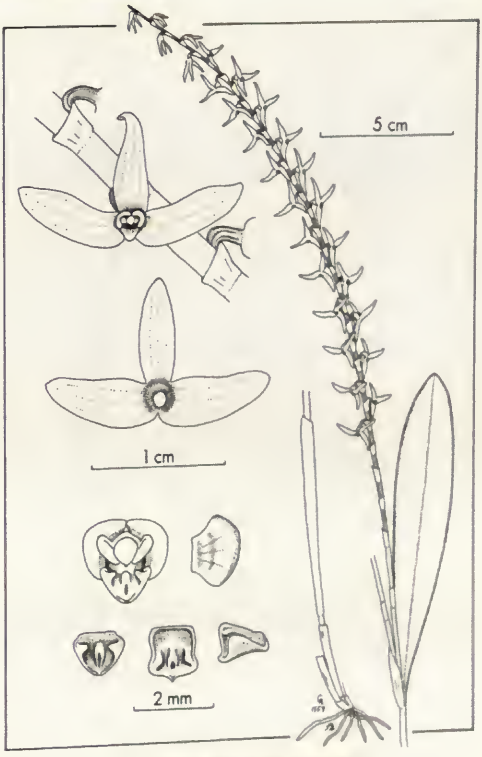

Fig. 155. Stelis fabulosa

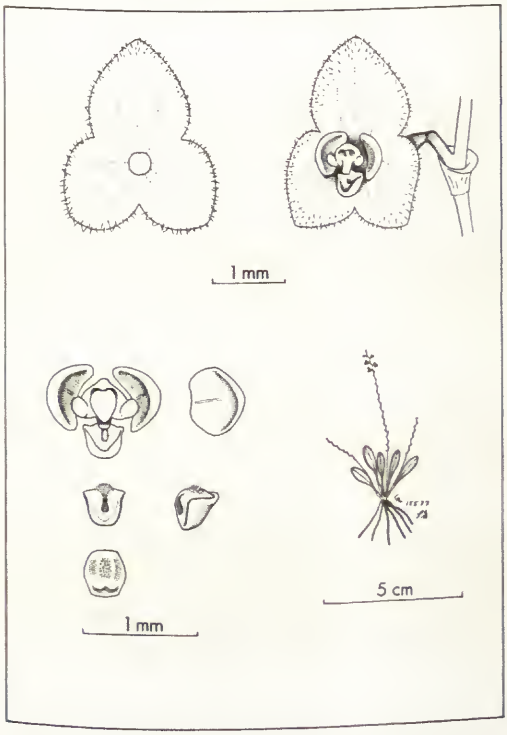

Fig. 156. Stelis gemmulosa

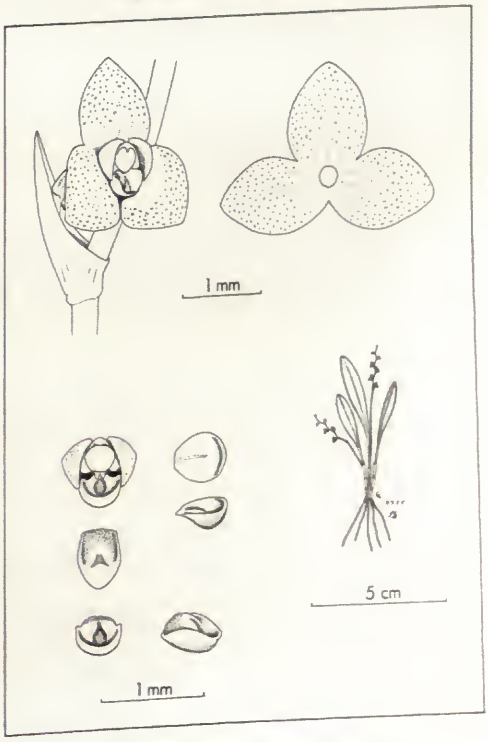

Fig. 157. Stelis glanduligera

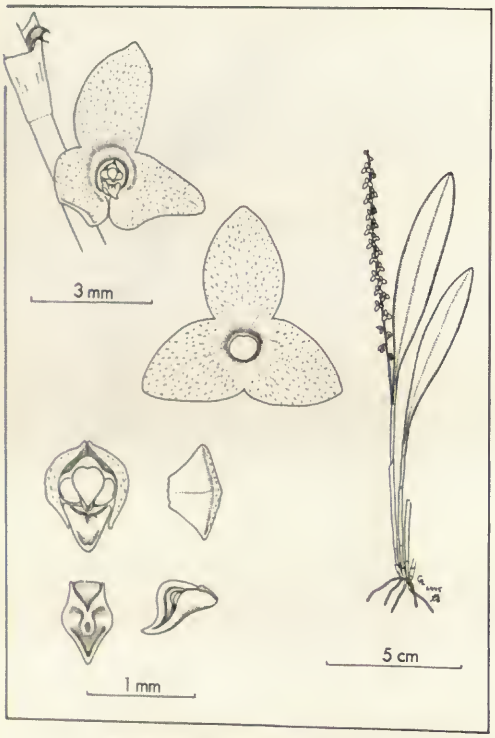

Fig. 158. Stelis haltonii

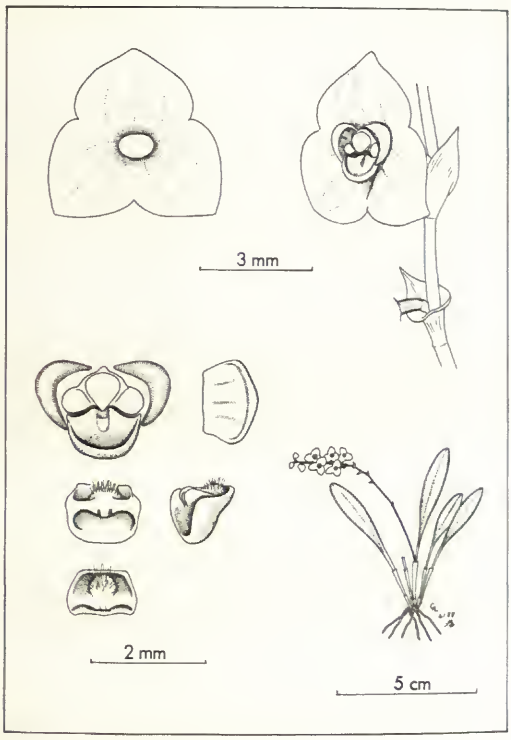

Fig. 159. Stelis hydroidea

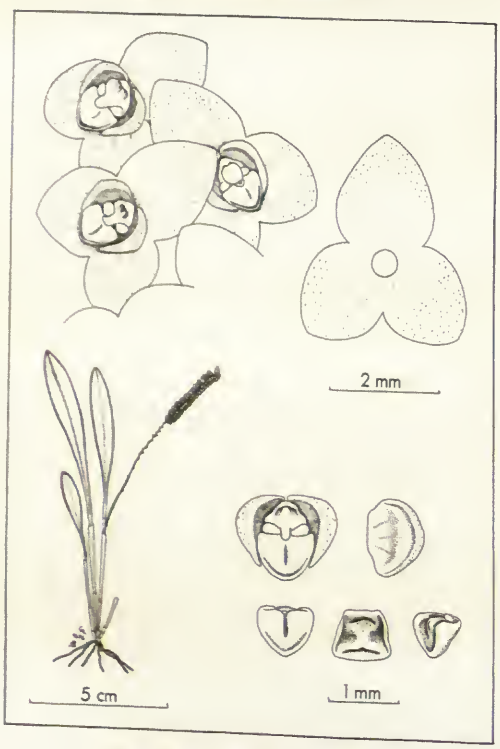

Fig. 160. Stelis imbricans

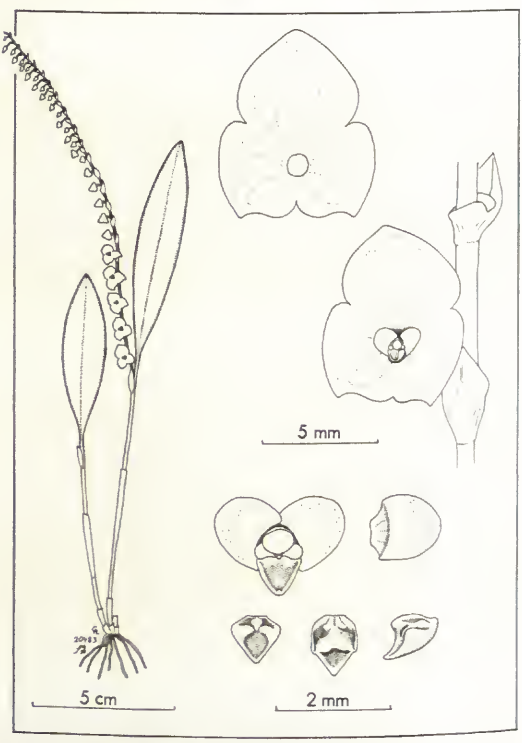

Fig. 161. Stelis immodica

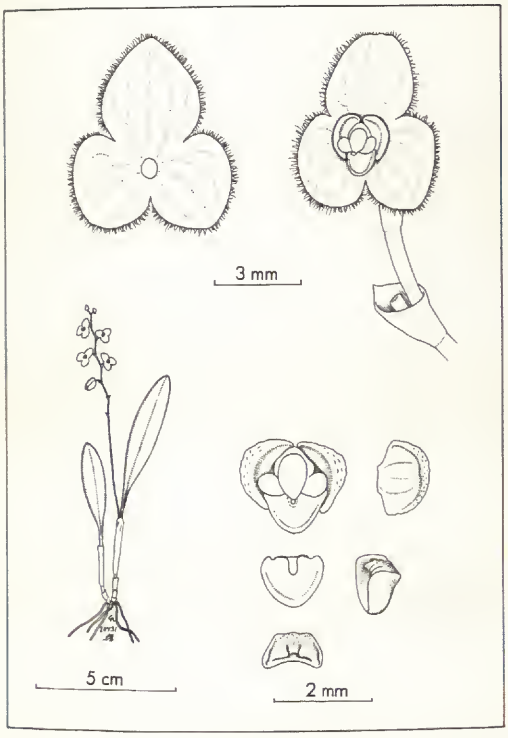

Fig. 162. Stelis impostor

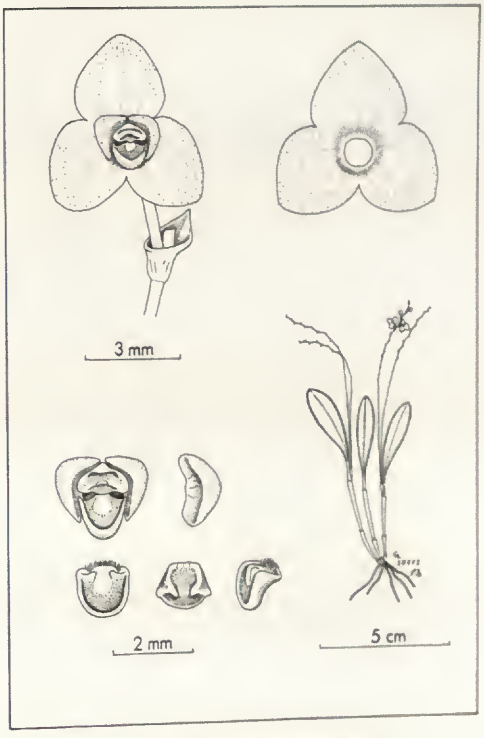

Fig. 163. Stelis intonsa

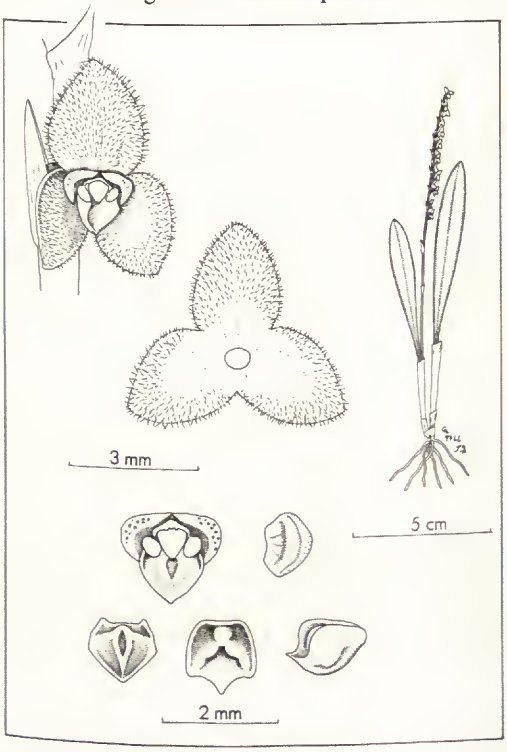

Fig. 164. Stelis lanuginosa

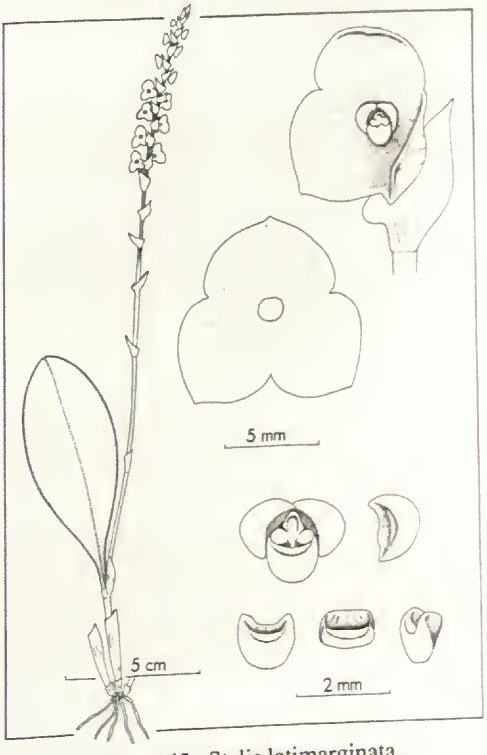

Fig. 165. Stelis latimarginata

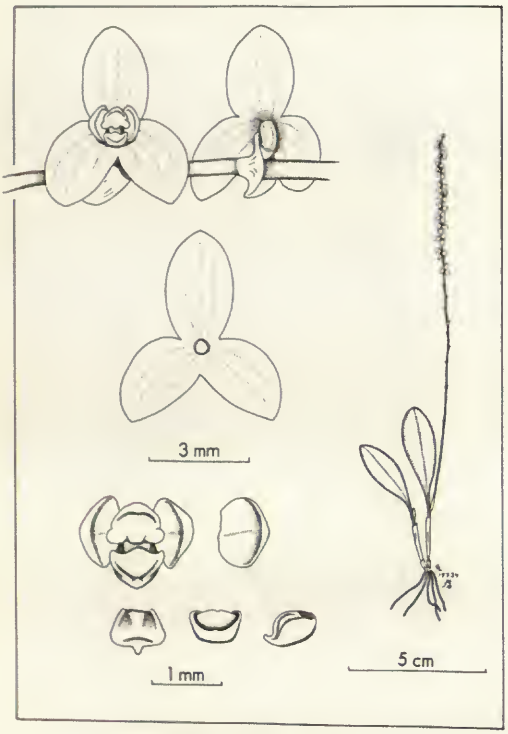

Fig. 166. Stelis liberalis

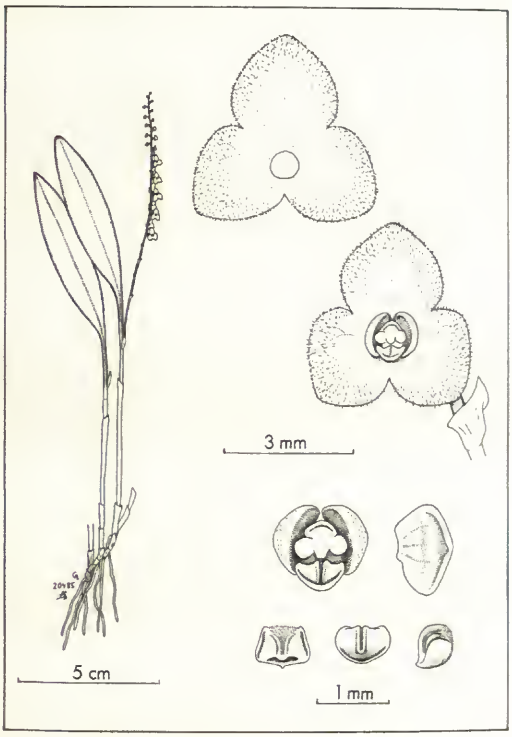

Fig. 167. Stelis loejtnantii

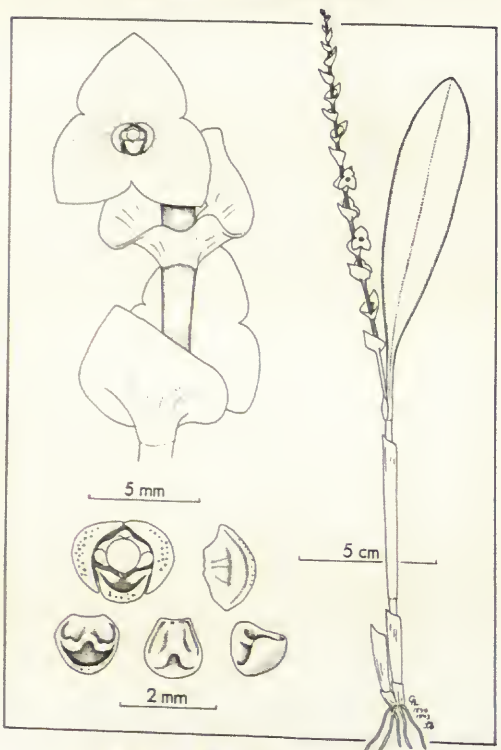

Fig. 168. Stelis macrolemma

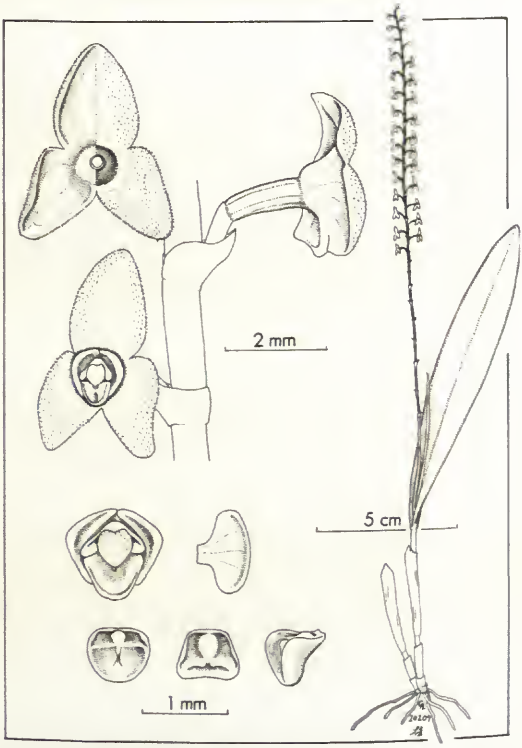

Fig. 169. Stelis medinae

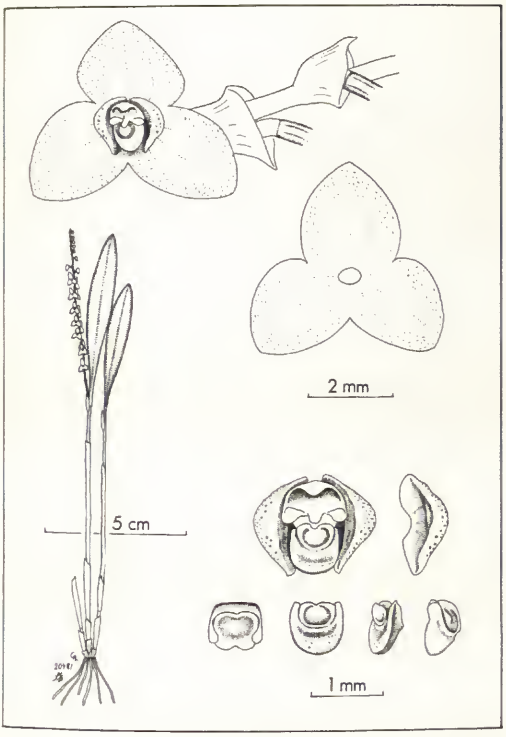

Fig. 170. Stelis megalops

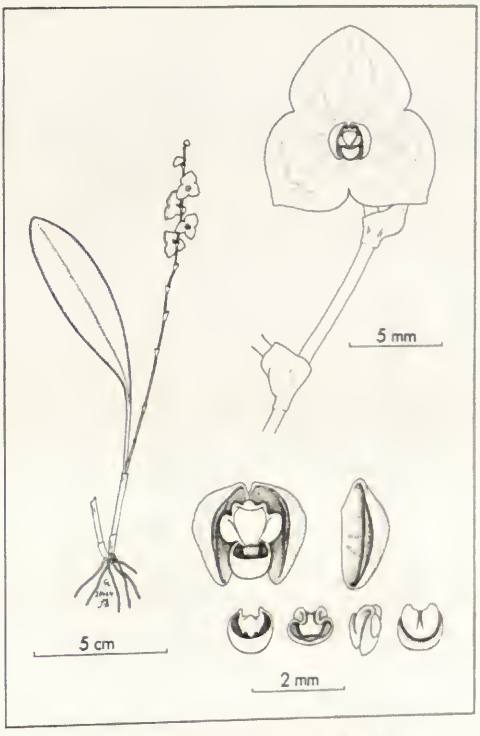

Fig. 171. Stelis membranacea

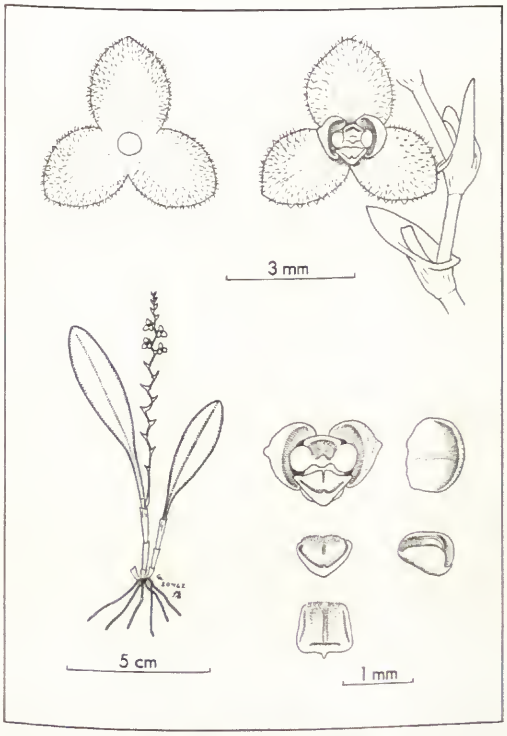

Fig. 172. Stelis mendozae

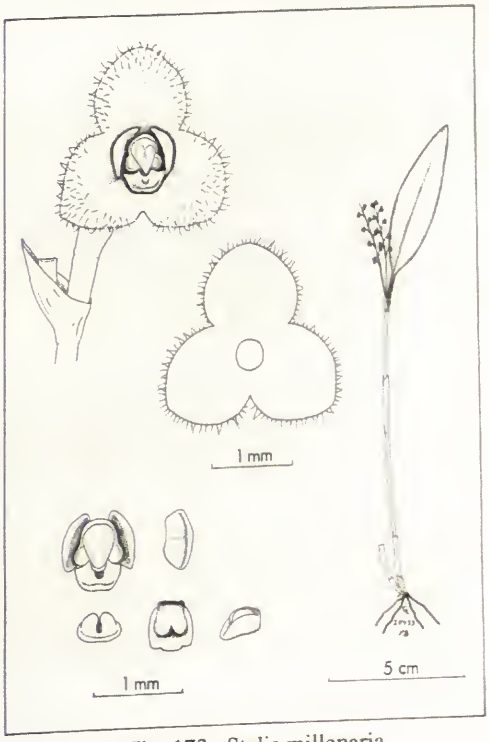

Fig. 173. Stelis millenaria

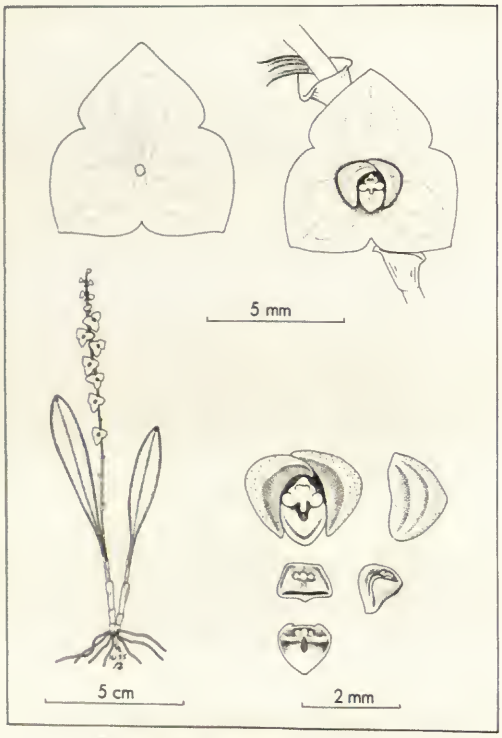

Fig. 174. Stelis mundula

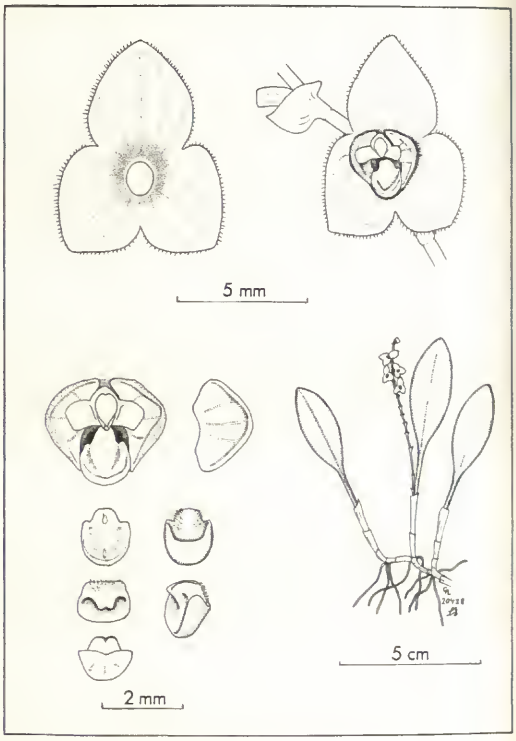

Fig. 175. Stelis nambijae

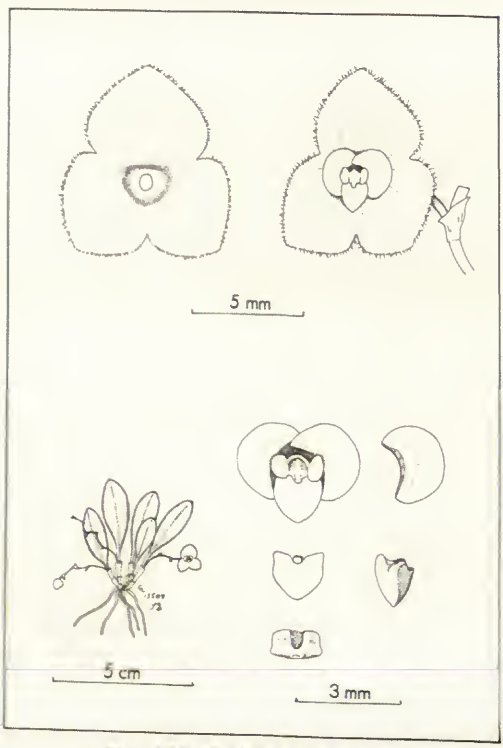

Fig. 176. Stelis opimipetala

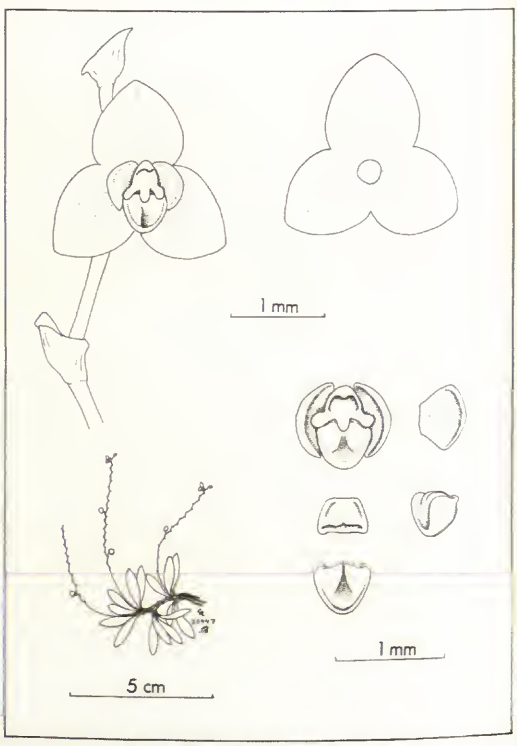

Fig. 177. Stelis paniculata

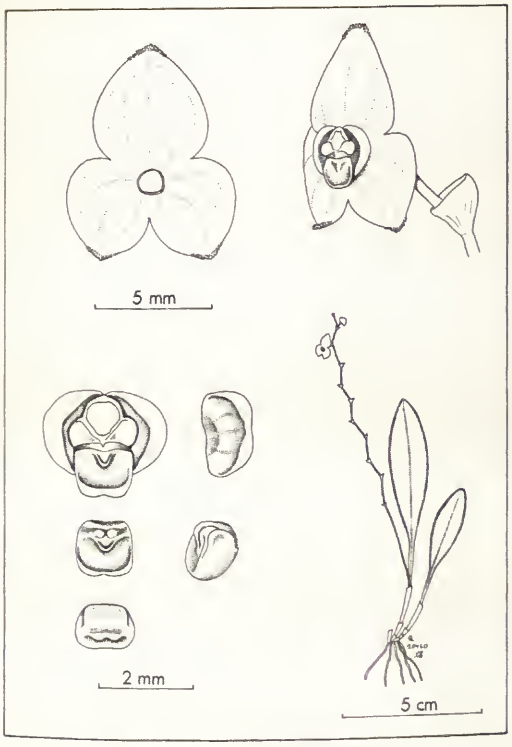

Fig. 178. Stelis papulina

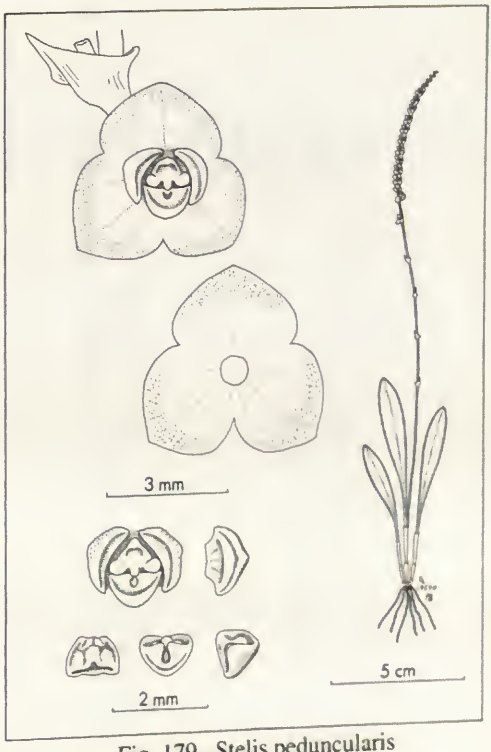

Fig. 179. Stelis peduncularis

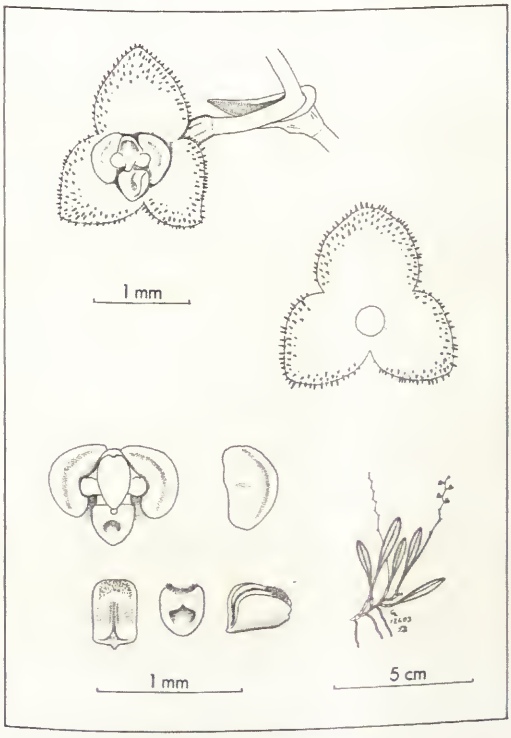

Fig. 180. Stelis pisinna

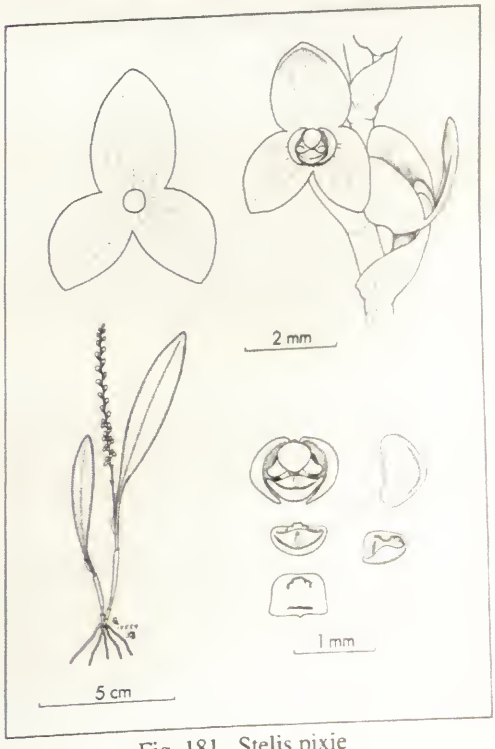

Fig. 181. Stelis pixie

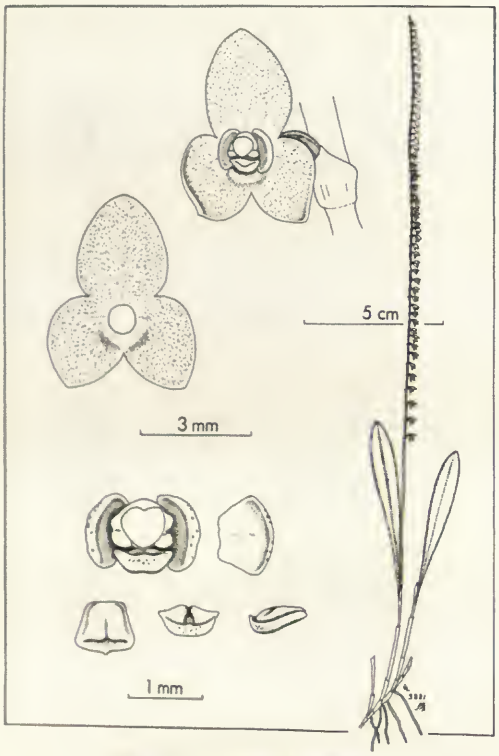

Fig. 182. Stelis polyantha

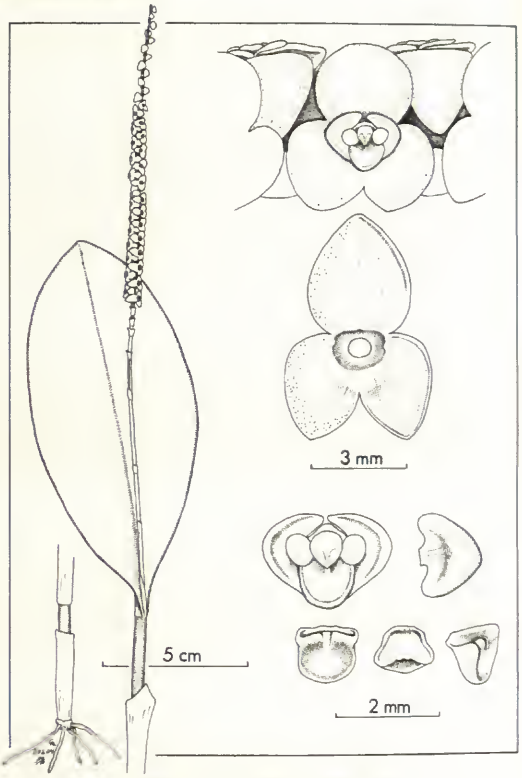

Fig. 183. Stelis portillae

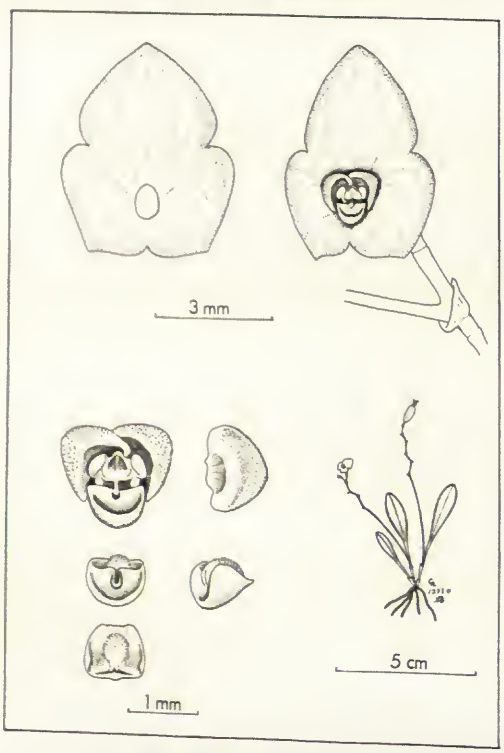

Fig. 184. Stelis prava

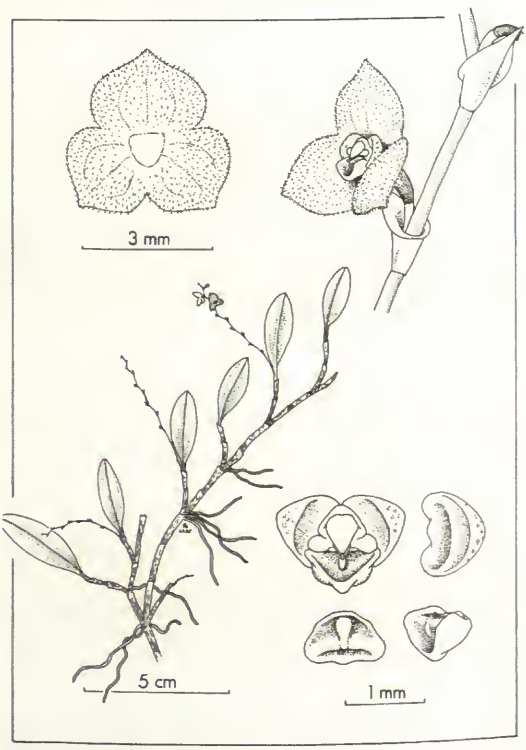

Fig. 185. Stelis prolata

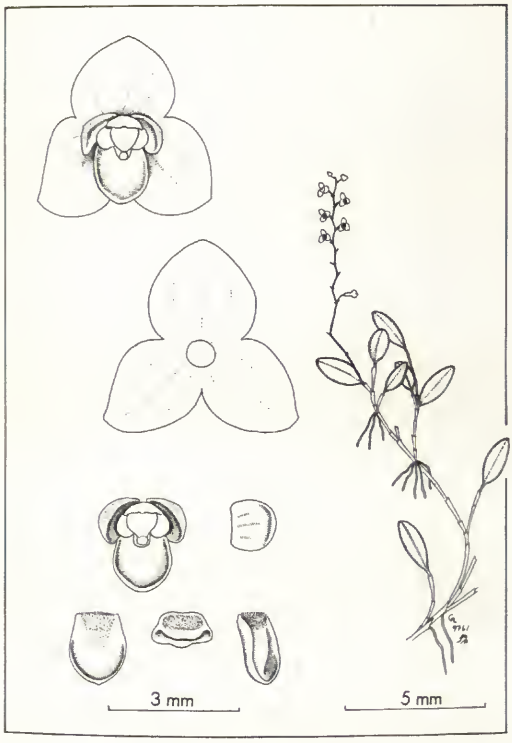

Fig. 186. Stelis ramulosa

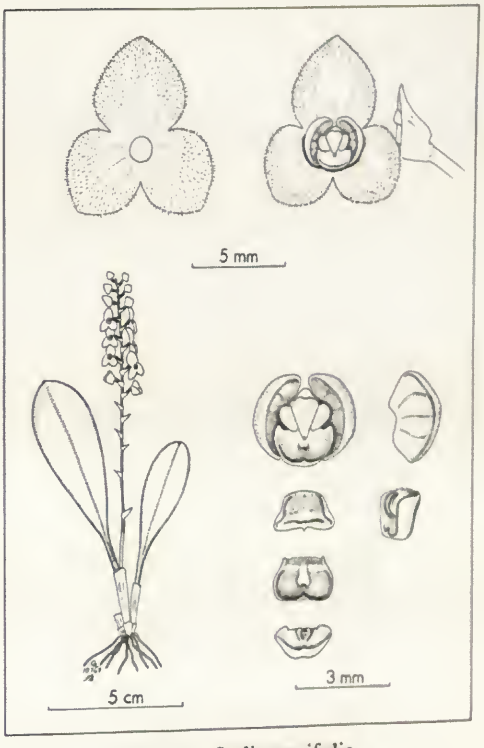

Fig. 187. Stelis remifolia

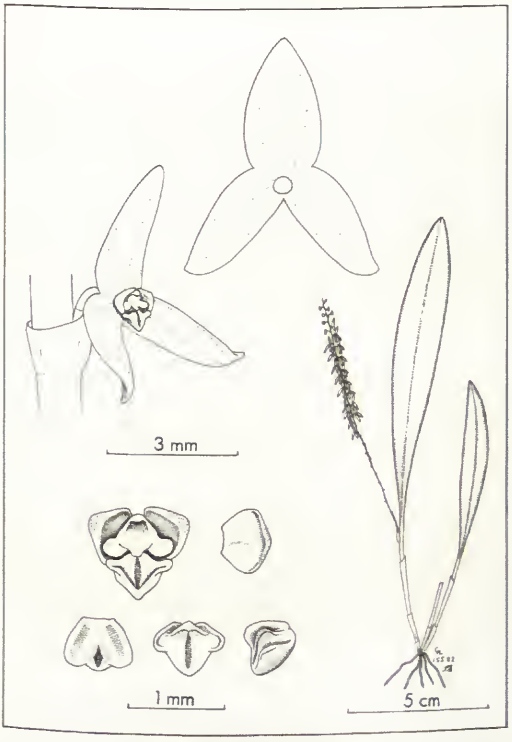

Fig. 188. Stelis rimulata

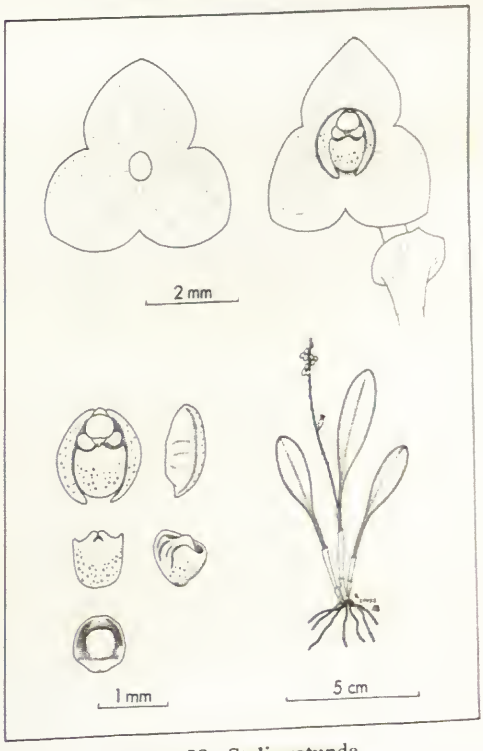

Fig. 189. Stelis rotunda

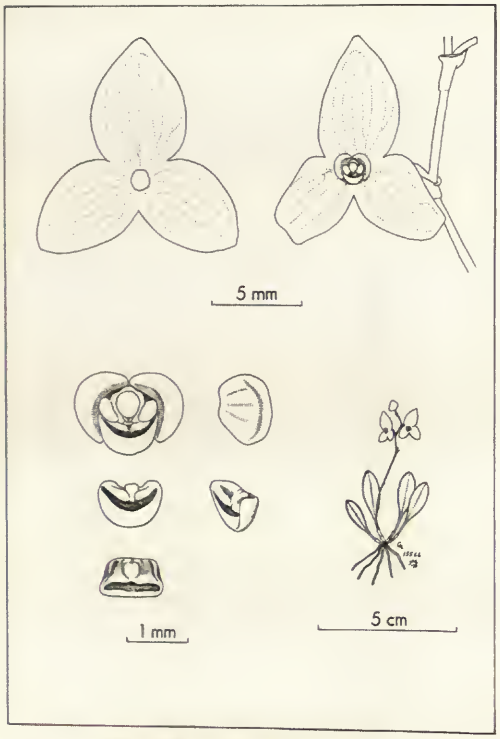

Fig. 190. Stelis schistochila

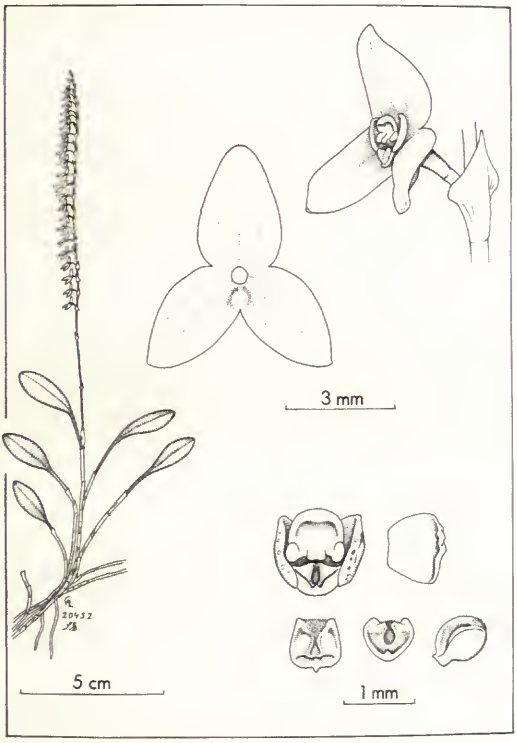

Fig. 191. Stelis secunda

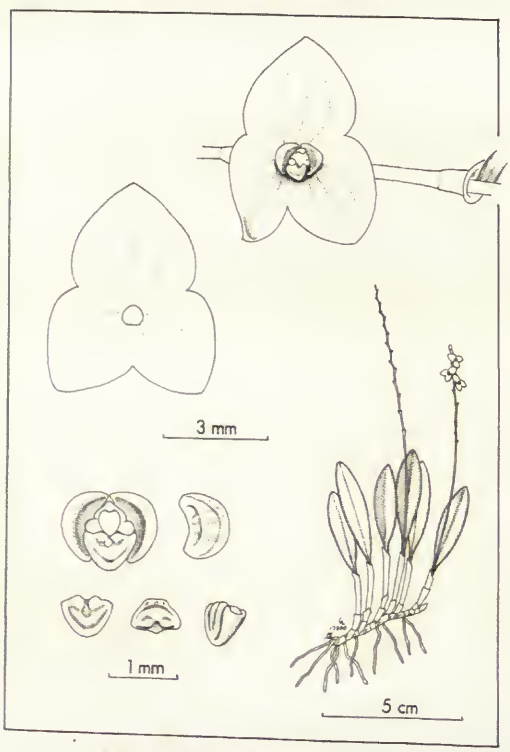

Fig. 192. Stelis septella

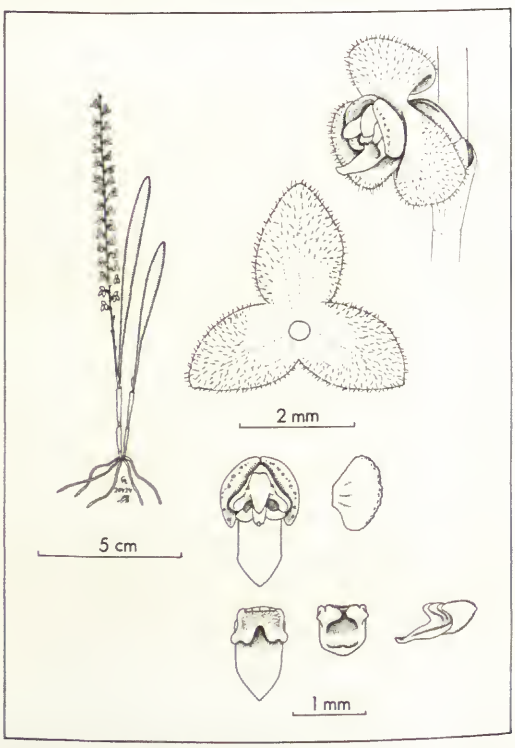

Fig. 193. Stelis stevensonii

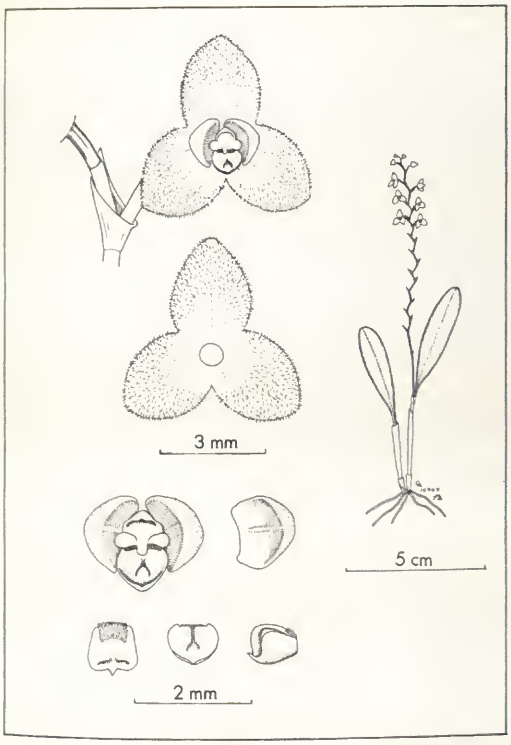

Fig. 194. Stelis tortuosa

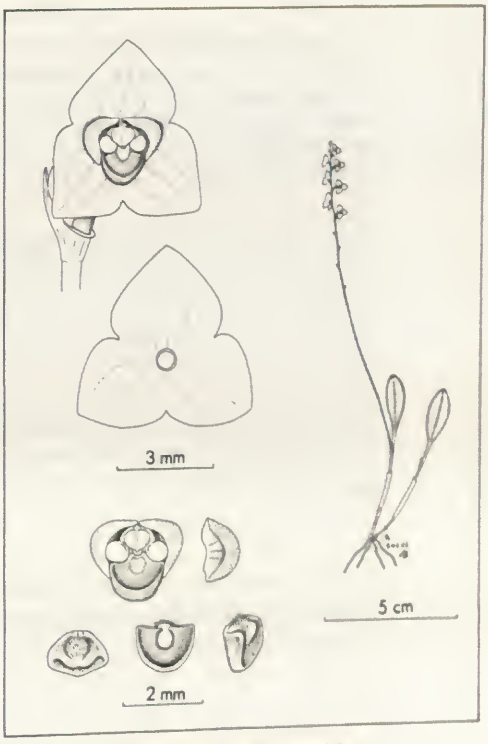

Fig. 195. Stelis tumida

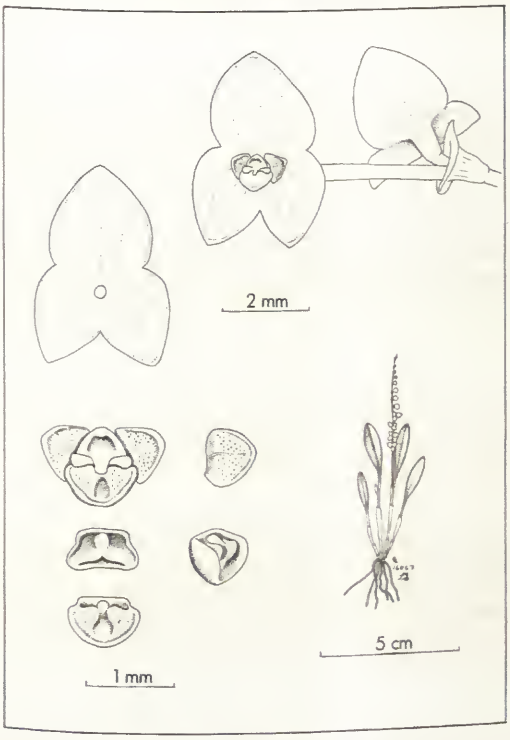

Fig. 196. Stelis viamontis

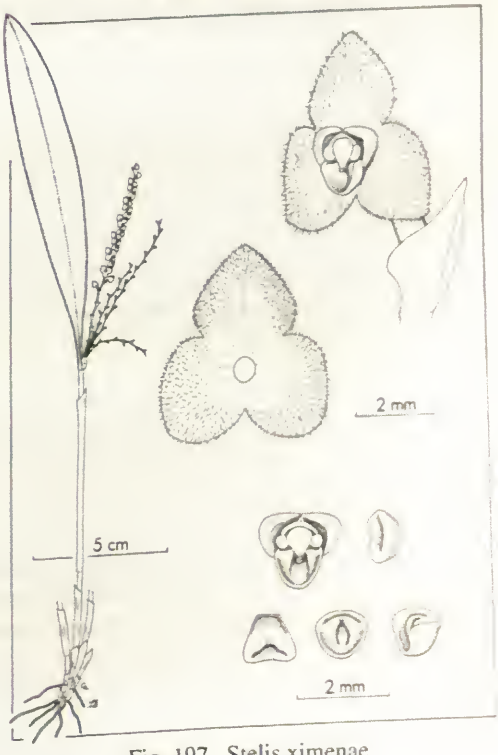

Fig. 197. Stelis ximenae

Section **LABIATAE**

198. **Stelis buxiflora** Luer & Hirtz, sp. nov.

Ety.: From the Latin *buxiflorus*, "with box-like flowers," referring to the flowers.

Planta grandis caespitosa, racemis paucis multifloris folio elliptico petiolato longioribus, sepalis lateralibus semiconnatis late obtusis conniventibus, petalis tenuibus concavis, et labello subtriangulari obtuso distinguitur.

Plant large, epiphytic, densely caespitose; roots slender. Ramicauls stout, erect, 10-12 cm long, enclosed by a tubular sheath from below the middle and another at the base. **Leaf** erect, coriaceous, elliptical-ovate, subacute to acute, petiolate, 10 cm long including a petiole ca. 1.5 cm long, the blade 2.5 cm wide, cuneate below into the petiole. **Inflorescence** 2-3 erect, congested, distichous, simultaneously many-flowered racemes 13-18 cm long including the peduncle ca. 5 cm long, from an annulus below the apex of the ramicaul, with a spathe 15-17 mm long; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1 mm long; flowers yellow-green, suffused with brown externally; **sepals** glabrous externally, microscopically papillose within, the dorsal sepal ovate, acute, curved forward, 4 mm long, 2.25 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals transversely ovate, broadly obtuse, concave, 2.25 mm long, 3 mm wide, 3-veined, connate 1 mm, connivent into a synsepal; **petals** transversely oblong-ovate, broadly rounded at the apex, thin, concave, 1.3 mm long, 1.5 mm wide, 3-veined, thickened along the margin; **lip** subtriangular, 1.3 mm long, 1.3 mm wide, 1 mm deep, concave toward the obtuse apex, the bar with a bifurcated callus, the dorsum with a broad, pubescent callus, the base truncate, hinged to an obsolescent column-foot; **column** stout, 1 mm long, 1.3 mm wide, with the elongated anther and the bilobed stigma apical.

Zamora-Chinchipe: Cajanuma range, south of Loja, alt. 2750 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10756* (Holotype: MO); east of the pass east of Loja, alt. 2500 m, 21 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16081* (MO).

This large species is characterized by one to three congested, multiflowered racemes that exceed the elliptical leaf; small cupped flowers with broad, concave, partially connate lateral sepals that converge to form a synsepal, with the dorsal sepal curving forward like a lid; broad, concave petals; and an obtuse, triangular lip with a forked callus on the bar.

199. **Stelis capsula** Luer & Hirtz, sp. nov.

From the Latin *capsula*, "a little box," referring to the semi-closed sepals.

Planta parva caespitosa, racemo congesto secundo foliis anguste ellipticis subacutis longiore, sepalis breviter pubescentibus ovatis obtusis infra medium in cupulam connatis laminis lateralibus antrorsis, petalis oblongis, et labello subquadrato nonprofundo concavo distinguitur.

Plant small, epiphytic, caespitose; roots filiform. Ramicauls erect, slender, 1.5-2.5 cm long, enclosed by 2 loose, tubular sheaths and another at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 2.5-4 cm long including an indistinct petiole less than 1 cm long, the blade 0.6-0.8 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, strict, secund, congested, many-flowered raceme, with many flowers open simultaneously, to 12 cm long including the peduncle ca. 4 cm long, from an annulus below the apex of the ramicaul, with a spathe 3 mm long; floral bracts oblique, infundibular, acute, 3 mm long; pedicels 1 mm long; ovary 1 mm long; **sepals** light green, glabrous externally, sparsely short-pubescent within, broadly ovate, obtuse, connate basally into a cup, the dorsal sepal erect, 2.75 mm long, 2.25 mm wide, 3-veined, the lateral sepals directed forward, 2.5 mm long, 2.25 mm wide, 3-veined; **petals** green, oblong, broadly truncate with a thickened, minutely subverrucose margin, shallowly concave, 1 mm long, 1 mm wide, 3-veined; **lip** yellow-green, shallowly subquadrate, 1.2 mm long, 1.2 mm wide, 0.5 mm deep, the apex broadly rounded, subretuse, the bar low, thick, not concave, the dorsum with a low but large callus, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 1 mm wide, the foot obsolescent, the anther apical, the stigma bilobed, apical, the lobes with introrse pubescence.

Morona-Santiago: between Gualaceo and Limón, alt. 2150 m, 14 Jan. 1989, *C. Luer, J. Luer, A. Hirtz, S. Ortega, A. & P. Jesup 13895* (Holotype: MO).

Vegetatively, this little species of southeastern Ecuador is similar to many others characterized by a narrow leaf and a slender raceme of small flowers. *Stelis capsula* is distinguished by the congested, secund, many-flowered raceme that far exceeds the leaf, and sepals connate basally into a cup with the laterals directed forward. The petals are oblong and three-veined. The lip is subquadrate and very shallow.

200. **Stelis coelochila** Luer, sp. nov.

Ety.: From the Greek *koilocheilos*, "a hollow lip," referring to the concave labellum.

Planta mediocris, racemo multifloro foliis anguste obovatis longiore, sepalis late ovatis intus pubescentibus sepalis lateralibus liberis conniventibus, petalis incrassatis et labello suborbiculato excavato distinguitur.

Plant medium in size, epiphytic, caespitose; roots fine. Ramicauls erect, slender, 2.5-6 cm long, enclosed by 2-3 imbricating, tubular sheaths. **Leaf** erect, coriaceous, narrowly linear-obovate, subacute, 6-8 cm long, including an indistinct petiole ca. 1 cm long, the blade 0.7-1 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with several flowers open simultaneously, 10-18 cm long including the peduncle 3-4 cm long, with a spathe 8-9 mm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2.5 mm long; pedicels 1 mm long; ovary 1.25 mm long; **sepals** cream colored, glabrous externally, long-pubescent within, broadly ovate, obtuse, connate basally, the dorsal sepal 3.5 mm long, 3.25 mm wide, 3-veined, the lateral sepals concave, directed forward, 3.25 mm long, 3.5 mm wide, 3-veined; **petals** red-brown, transversely ovate, with the apex broadly obtuse with a thick, flat margin, shallowly concave at the base, 1 mm long, 1.2 mm wide; **lip** red-brown, spheroid, 1.5 mm long, 1.25 mm wide, 1.2 mm deep, deeply concave anteriorly with the margins thin, incurved, rounded at the apex, the dorsum shelf-like, cleft anteriorly, truncate basally, hinged to the base of the column; **column** stout, 1.2 mm long, 1.2 mm wide, the anther and the bilobed stigma apical.

Napo: forest between Tena and Baeza, alt. 1500 m, 29 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9793* (Holotype: MO).
Sucumbíos: scrub forest south of Santa Barbara, alt. 2700 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15202* (MO).

This species is characterized by a strict, crowded, many-flowered raceme longer than the narrowly obovate leaf. The sepals are pubescent within with the laterals directed forward. The lip is spherical and deeply hollowed out, reminiscent of *S. angustifolia* H.B.K., *S. humilis* Lindl., and *S. sphaerochila* Lindl.

201. **Stelis gentryi** Luer & Dodson, sp. nov.

Ety.: Named for the late Alwyn H. Gentry, co-collector of the species.

Species haec *S. schomburgkii* Fawc. & Rendle affinis, sed racemis pluribus brevioribus et sepalis intus longipubescentibus distinguitur.

Plant medium in size, epiphytic, densely ascending-caespitose; roots coarse. Ramicauls erect, slender, 10-15 cm long, with a comparatively short tubular sheath from near the middle and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, subacute to obtuse, 8-10 cm long including a petiole ca. 1 cm long, 1.2-1.5 cm wide, narrowed below into the base. **Inflorescence** 2-6 erect to suberect, congested, distichous, many-flowered racemes with most flowers open simultaneously, 4-7 cm long, flowering to near the base, subtended by a slender spathe 8-15 mm long, from an annulus below the apex of the ramicaul; floral bracts broadly tubular, 2 mm long; pedicels 1 mm long; ovary 1 mm long; flowers purple, **sepals** similar, long-pubescent within, glabrous externally, connate basally, elliptical, subacute to obtuse, the dorsal sepal 2 mm long, 1.75 mm wide, 3-veined, the lateral sepals often held forward, 2 mm long, 1.8 mm wide, 3-veined; **petals** thin, transversely obovate, shallowly concave, 0.5 mm long, 1 mm wide, 3-veined, the apex broadly rounded to truncate with the margin slightly thickened; **lip** thick, suboblong, 0.8 mm long, 0.6 mm wide, 0.5 mm deep, concave anteriorly with the apex subtruncate, sharply short-apiculate, the bar with a cleft glenion, the dorsum low callous, densely short-pubescent at the base, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.8 mm wide, the foot obsolescent, the anther and the stigma apical, the stigma transversely bilobed.

Carchi: scrub forest north of El Playón de San Francisco, alt. 3100 m, 20 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15196* (Holotype: MO); west of El Carmelo, between Tulcán and Santa Barbara, alt. 2900 m, 5 Feb. 1982, *C.H. Dodson & A.H. Gentry 12082* (MO).

This species of northernmost Ecuador is allied to the widely distributed *S. schomburgkii* from which it is easily distinguished by several, congested racemes that are much shorter than the leaves. The flowers of the two species are very similar, except that the sepals of *S. gentryi* are long-pubescent. The lip is oblong with the truncate apex sharply apiculate.

202. **Stelis molleturensis** Luer & Hirtz, sp. nov.

Ety.: Named for the Cordillera de Molleturo where the species was collected.

Species haec *S. schomburgkii* Schltr. similis, sed habitu majore, racemo folio breviore, sepalis glabris, petalis proportione majoribus differt.

Plant medium in size to large, epiphytic, densely caespitose; roots slender. Ramicauls erect, slender, 10-18 cm long, enclosed by a close, tubular sheath on the middle third and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 13-16 cm long including a petiole 1.5-2 cm long, the blade 2-2.7 cm wide, narrowed below into the petiole. **Inflorescence** an erect, congested, distichous, many-flowered raceme with most flowers open simultaneously, 9-10 cm long including the peduncle 1-1.5 cm long, subtended by a slender spathe 2 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 3 mm long; pedicel 1.5 mm long; ovary 1.5-2 mm long; **sepals** purple externally, green within, fleshy, glabrous, the dorsal sepal ovate, subacute, convex, 4 mm long, 2.75 mm wide, 3-veined, the lateral sepals ovate, obtuse, minutely apiculate, 3.5 mm long, 2.25 mm wide, connate 1 mm and held forward as a cleft synsepal; **petals** purple, transversely ovate, thin, shallowly concave, 1 mm long, 1.25 mm wide, the apex broadly obtuse with the margin thickened; **lip** purple, thick, subtriangular, 0.8 mm long, 0.8 mm wide, 0.6 mm deep, concave anteriorly with the apex contracted into a triangular lobe, the bar with a cleft glenion with a microscopic pair of hair-like appendages, the dorsum with a low, transverse callus at the base, the base broadly truncate, hinged to the base of the column; **column** stout, 1 mm long, 0.8 mm wide, the foot obsolescent, the anther and the stigma apical with the stigma transversely bilobed.

Azuay: Cordillera de Molleturo, forest above Río Shurimal, alt. 750 m, 27 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, A. & P. Jesup 16181* (Holotype: MO).

This species is related to *S. schomburgkii*. It is characterized by an acute, elliptical, long-petiolate leaf, and a shorter raceme. The flowers are small, fleshy, and nutant. The dorsal sepal is convex and erect; the lateral sepals are connate basally, obtuse, minutely apiculate, and held forward as a synsepal. The lip is concave anteriorly with the apex triangular and subacute. The bar possesses a glenion with a microscopic pair of appendages.

203. **Stelis petiolata** Luer & Hirtz, sp. nov.

Ety.: From the Latin *petiolatus*, "petiolate," referring to the leaves.

Planta mediocris, racemo multifloro sublaxo foliis ellipticis longipetiolatis longiore, sepalis ovatis intus minutissime pubescentibus ad basim in cupulam connatis lateralibus antrorsis, petalis tenuibus concavis et labello ovoideo distinguitur.

Plant medium in size, epiphytic, caespitose; roots fine. Ramicauls erect, slender, 2.5-3 cm long, enclosed by a tubular sheath and another 1-2 sheaths at the base. **Leaf** erect, coriaceous, long-petiolate, subacute, the blade 5-8 cm long, 1.7-2.2 cm wide, cuneate below into the slender petiole 2-3 cm long. **Inflorescence** a strict, erect, sublax, secund, many-flowered raceme with most flowers open simultaneously, 10-18 cm long including the peduncle ca. 6 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 2 mm long; pedicels 1 mm long; ovary 1 mm long; flowers light green, **sepals** glabrous externally, cellular-pubescent within, ovate, obtuse, connate basally into a sepaline cup, the dorsal sepal 2.6 mm long, 2.6 mm wide, 3-veined, the lateral sepals directed forward, 2 mm long, 2.5 mm wide, 3-veined; **petals** transversely ovate, thin, concave, with the apex broadly obtuse, 1.25 mm long, 1.5 mm wide, 3-veined; **lip** thick, ovoid, the apex round with a thin margin, 1.25 mm long, 1.25 mm wide, 1.25 mm deep, the bar thick with an oblong glenion, the dorsum minutely pubescent, truncate, hinged to the base of the column; **column** stout, 1.5 mm long, 1.3 mm wide, the anther and the bilobed stigma apical.

Morona-Santiago: forest between San Juan Bosco and Gualaceo, alt. 1850 m, 28 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10984* (Holotype: MO).

This species is characterized by an elliptical, long-petiolate leaf far surpassed by a strict, crowded, many-flowered raceme. The ovate sepals are connate basally into a cup with the laterals directed forward. The central apparatus is proportionately large. The petals are thin and concave. The lip is ovoid with a round apex and a thick bar that is pubescent on the dorsum.

204. **Stelis subtilis** Luer & Dalström, sp. nov.

Ety.: From the Latin *subtilis*, "dainty, neat," referring to the raceme.

Planta parva, racemo multifloro foliis linearibus longiore, sepalis lateralibus liberis conniventibus, petalis uninervis et labello discoideo distinguitur.

Plant small, epiphytic, shortly repent to fasciculate; roots fine. Ramicauls erect, slender, 2.5-3.5 cm long, enclosed by a tubular sheath and 2-3 sheaths at the base. **Leaf** erect, coriaceous, narrowly linear-elliptical, acute, 5-6.5 cm long, including an indistinct petiole ca. 1 cm long, the blade 0.5-0.6 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an erect, very congested, secund, many-flowered raceme with most flowers open simultaneously, 8-13 cm long including the peduncle 2-3 cm long, from an annulus below the apex of the ramicaul; floral bracts oblique, acute, 1.5 mm long; pedicels 0.5 mm long; ovary 1 mm long; flowers light yellow-green; **sepals** glabrous, ovate, obtuse, the dorsal sepal 2 mm long, 1.25 mm wide, 3-veined, connate basally to the lateral sepals, the lateral sepals directed forward, connate basally, 1.5 mm long, 1.5 mm wide, 3-veined; **petals** transversely elliptical, with the apex broadly rounded with a narrow margin, shallowly concave, 0.5 mm long, 0.6 mm wide; **lip** thick, discoid, 0.25 mm long, 0.6 mm wide, 0.6 mm deep, convex anteriorly without a glenion, shallowly concave within the rounded apex, the dorsum narrow, minutely pubescent, truncate, hinged to the base of the column; **column** stout, 0.5 mm long, 0.6 mm wide, the anther and the stigma apical, with the stigma bilobed, the foot obsolescent.

Napo: forest between Tena and Baeza, alt. 2150 m, 29 Mar. 1984, *C. Luer, S. Dalström, T. Höijer & J. Kuijt 9806* (Holotype: MO).

This small species is characterized by the shortly repent habit; narrowly linear leaves longer than the ramicauls; a slender, many-flowered raceme longer than the leaves; very small flowers with connivent lateral sepals; single-veined petals; and a discoid lip.

205. **Stelis zigzag** Luer & Hirtz, sp. nov.

Ety.: From the French *zigzag*, "flexuous," referring to the racemes.

Planta mediocris breviter repens, racemis paucis flexuosis folio elliptico petiolato brevioribus, sepalis lateralibus semiconnatis late obtusis conniventibus, petalis crassis concavis, et labello subquadrato obtuso bicalloso distinguitur.

Plant medium in size, epiphytic, shortly repent but forming dense cluster; roots slender. Ramicauls slender, erect, 5-7 cm long, enclosed by a tubular sheath from below the middle and another at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, petiolate, 8-13 cm long including a petiole 2.5-3 cm long, the blade 1.8-2.5 cm wide, cuneate below into the petiole. **Inflorescence** 2-3 erect to suberect, subcongested, distichous, flexuous, simultaneously many-flowered racemes 7-10 cm long, flowering from the base, from an annulus below the apex of the ramicaul, with a spathe 10-12 mm long; floral bracts oblique, dilated, acute, 2.5 mm long; pedicels 1 mm long; ovary 1 mm long; flowers dark purple; **sepals** glabrous, the dorsal sepal erect, ovate, obtuse, convex, 4 mm long, 3.5 mm wide, 3-veined, connate to the lateral sepals for 1 mm, the lateral sepals broadly ovate, broadly obtuse, concave basally, 2.5 mm long, 3 mm wide, 3-veined, connate 1 mm, connivent into a synsepal; **petals** transversely ovate, broadly thickened at the obtuse apex, and thickened across the middle, concave basally, 1.25 mm long, 1.75 mm wide, 3-veined; **lip** subquadrate-subtriangular, 1 mm long, 1.25 mm wide, 1.25 mm deep, concave toward the obtuse apex, the bar bifurcated into two calli, the dorsum with a low, pubescent callus, the base truncate, hinged to an obsolescent column-foot; **column** stout, 1.5 mm long, 1.5 mm wide, with the anther and the bilobed stigma apical.

Zamora-Chinchipe: Cajanuma range, south of Loja, alt. 2750 m, 21 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 10749* (Holotype: MO).

This species is characterized by two or three flexuous, sublax, multiflowered racemes shorter than the elliptical, long-petiolate leaf. The convex dorsal sepal stands erect over connivent, broadly obtuse, lateral sepals that are connate and concave below the middle; the petals are thick at the obtuse apex; and the bar of the lip is shallowly bifurcated into a pair of rounded calli.

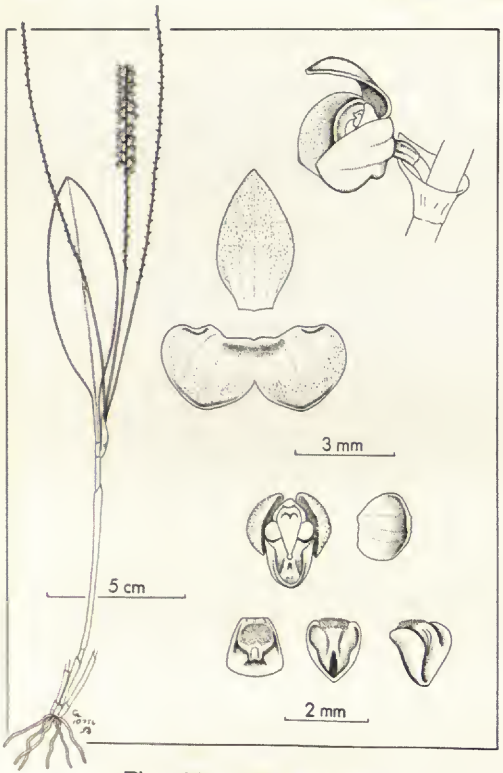

Fig. 198. Stelis buxiflora

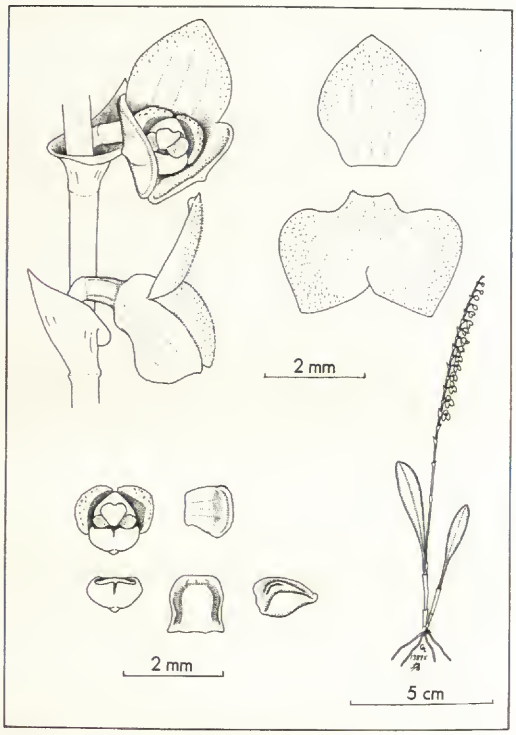

Fig. 199. Stelis capsula

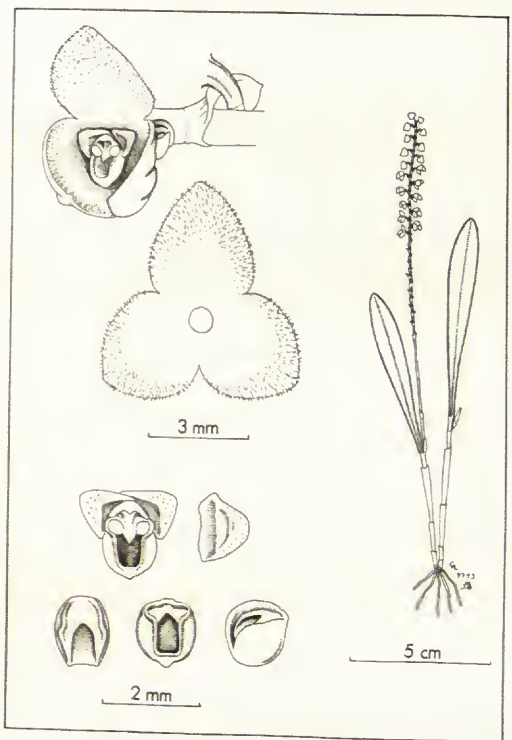

Fig. 200. Stelis coeloglossa

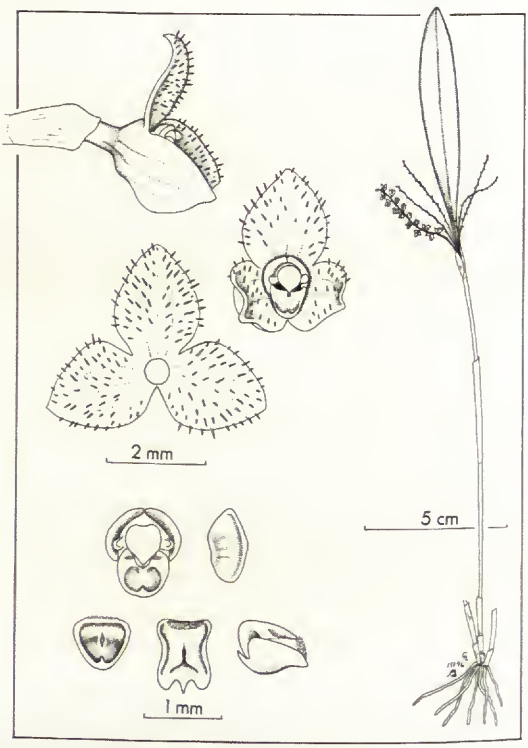

Fig. 201. Stelis gentryi

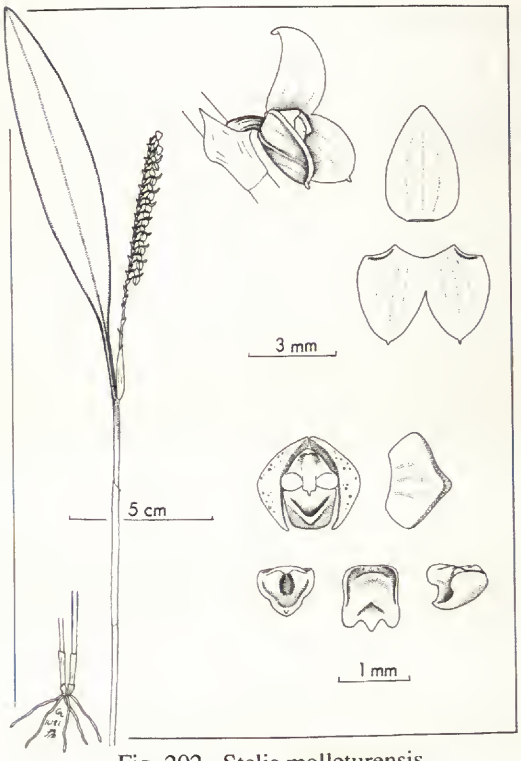

Fig. 202. Stelis molleturensis

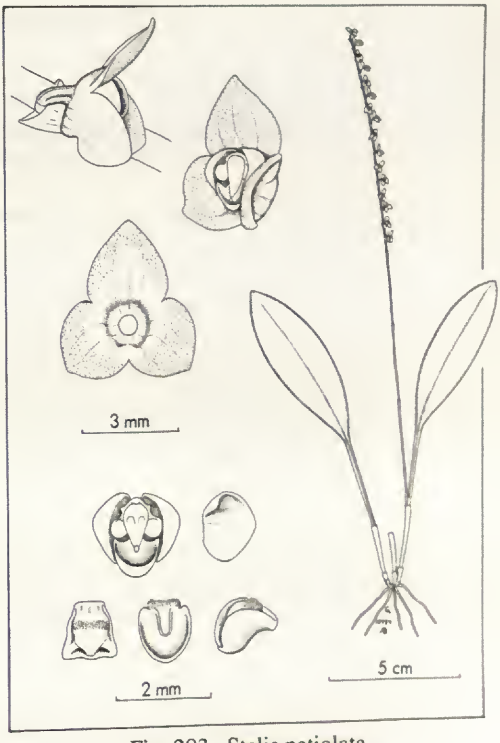

Fig. 203. Stelis petiolata

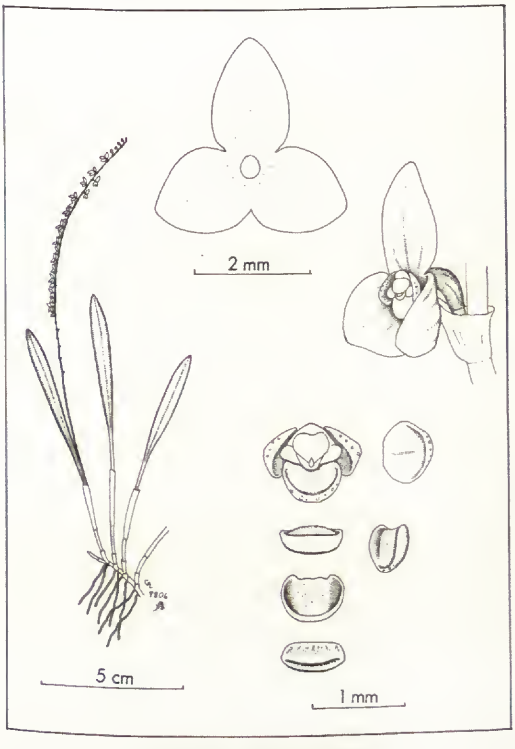

Fig. 204. Stelis subtilis

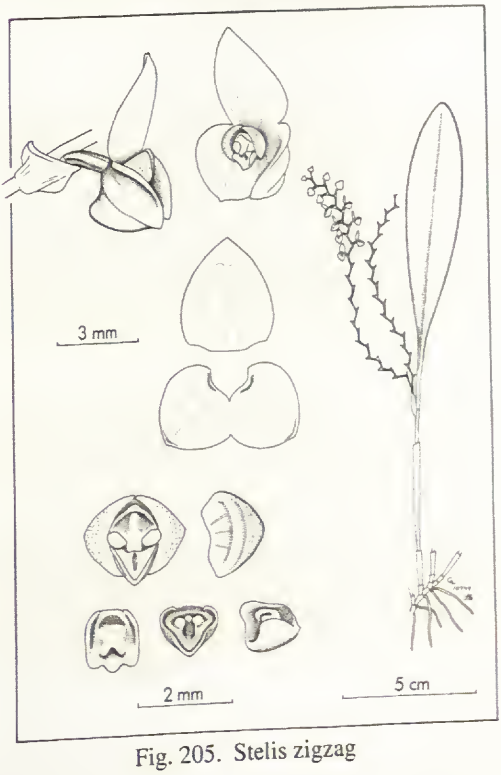

Fig. 205. Stelis zigzag

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S. tortuosa 173, Fig. 194.
S. tumida 174, Fig. 195.
S. venosa 132, Fig. 126.
S. venusta 132, Fig. 127.
S. viamontis 174, Fig. 196.
S. ximenae 175, Fig. 197.
S. zigzag 197, Fig. 205.

SYSTEMATICS OF THE GENUS *EPIBATOR* (ORCHIDACEAE)

ABSTRACT

A new genus in the Pleurothallidinae is proposed to accommodate two non-conforming species attributed to *Zootrophion* Luer. The genus and the three species are described and illustrated with black and white drawings.

New taxa:
Epibator Luer, gen. nov.
Epibator hirtzii (Luer) Luer, comb. nov.
Epibator serpentinus (Luer & Hirtz) Luer, comb. nov.
Epibator ximenae Luer & Hirtz, sp. nov.

In 1984, two closely related, most unusual Ecuadorian species were described in *Zootrophion*. It was a rare circumstance for two such unknown, totally distinct species to be discovered nearly simultaneously in an area that apparently had been thoroughly botanized for the past century, and not far from a major metropolitan center. Neither of these species had been collected before. A third is now added.

The flowers are characterized by a pair of lateral windows into the interior of the flower, a character well known in *Pleurothallis* sect. *Cryptophoranthus* Barb.Rodr., *Ophidion* Luer, and *Zootrophion* Luer, as well as a few, isolated species currently considered in other subgeneric taxa in *Pleurothallis*. However, the following characters distinguish these three species from the others. The habit is vine-like. The inflorescence is produced at what first appears to be the junction between the rhizome and the ramicaul, but this point is really the site of proliferation of another ramicaul. Only the short, terminal part of the ramicaul is present between the inflorescence and the leaf-ramicaul abscission layer, the series of superposed ramicauls appearing to be an elongated rhizome.

The synsepal is saccate as in *Cryptophoranthus*, not box-like with rigid sides and a convex floor as in *Zootrophion*; and the dorsal sepal is connate to the synsepal only at the apex, not at the base. The lip is hinged from the column-foot, and not fitted into a compartment within the floor of the synsepal. Although the DNA sequenced (Pridgeon & Chase, 2001) places these two species near (not within) the genus *Zootrophion*, the vegetative and floral differences indicate that the two taxa evolved along their independent ways a very long time ago.

Epibator Luer, gen. nov.

Type: *Zootrophion hirtzii* Luer, Amer. Orchid Soc. Bull. 53: 1293, 1984.

Ety.: From the Greek *epibator*, "a climber," referring to the vinelike habit.

Habitus longissime repens ramicaulibus proliferantibus, inflorescentia uniflora, sepalum dorsalum ad apicem synsepali connatum et ad basim liberum distinguitur.

Plants perennial, epiphytic, long-repent, rooting from nodes. Ramicauls ascending, proliferating, non-pseudobulbous, unifoliate, enclosed by 3-4 ribbed, tubular sheaths. **Leaf** erect, coriaceous, smooth, elliptical to ovate, acute to obtuse, the base contracted into a petiole. **Inflorescence** a solitary, resupinate flower, or a successively 2-flowered raceme, borne by a pendent peduncle with a bract near the base, from the junction between ramicauls; floral bract tubular; pedicels slightly longer than the floral bract; ovary trivalvate, neither costate nor lamellate; **sepals** conspicuous, more or less fleshy, glabrous, purple, yellow, or white, the laterals connate completely into a saccate, obovoid synsepal, the dorsal sepal elliptical, acute, connate above the middle to the synsepal, free at the base, forming gaping lateral windows; **petals** elliptical, acute, unguiculate; **lip** fleshy, trilobed or sagittate, the sides erect and lobe-like on the middle third, broadly rounded, the apex obtuse, verrucose, the disc channeled between a pair of tall calli, the base unguiculate below the erect sides, with a smooth callus, hinged to the apex of the column-foot; **column** semiterete, the apex dentate, the anther, rostellum and stigma ventral; pollinia 2, obovoid, with minute viscidia, the base of the column produced into a thick foot with the apex of the ovary.

SPECIES ATTRIBUTABLE TO *EPIBATOR*

Epibator hirtzii (Luer) Luer ..... Fig. 1.
Epibator serpentinus (Luer & Hirtz) Luer ..... Fig. 2.
Epibator ximenae Luer & Hirtz ..... Fig. 3.

KEY TO THE SPECIES

1 Leaves broadly to narrowly elliptical; flowers over 2.5 cm long 2
1' Leaves elliptical to broadly elliptical, subacute to obtuse; flowers purple, less than 2 cm long ..... *E. serpentinus*
2 Leaves elliptical to narrowly elliptical, acute to subacute; flowers yellow ..... *E. hirtzii*
2' Leaves elliptical to broadly elliptical, subacute to obtuse; flowers white, spotted with purple ..... *E. ximenae*

Epibator hirtzii (Luer) Luer, comb. nov.

Bas.: *Zootrophion hirtzii* Luer, Amer. Orchid Soc. Bull. 53: 1293, 1984.

Ety.: Named in honor of Alexander C. Hirtz of Quito, Ecuador, who discovered this species.

Plant medium in size, epiphytic, long-repent, up to 1 meter or more long; roots few, slender. Ramicauls slender, creeping, prostrate or pendent, proliferating and rooting from an annulus 3-5 mm below the abscission layer, 3.5-5 cm long, enclosed by 3-4, closely applied, ribbed, tubular sheaths. **Leaf** erect, coriaceous, elliptical, petiolate, acute to subacute, 3-5.5 cm long, 1.2-1.5 cm wide, cuneate below into a petiole 4-10 mm long. **Inflorescence** a large, yellow, single flower, sometimes followed by second in a loose raceme, borne by a slender, pendent peduncle 18-25 mm long, from the annulus below the abscission layer; floral bract tubular, 8 mm long; pedicel 10 mm long; ovary subverrucose, 5-7 mm long; **sepals** yellow, sparsely dotted with red, glabrous, the dorsal sepal veined in red below the middle, elliptical, acute, 33 mm long, 9 mm wide, connate to the synsepal apically for 8 mm, free at the base, creating widely patent lateral openings, the lateral sepals completely connate into a concave, inflated, obtuse, pyriform synsepal 26 mm long, 10 mm wide unexpanded; **petals** cream with 3 red veins, subfalcate-elliptical, acute, 15 mm long, 3 mm wide, obtusely angled on the upper margin above the claw; **lip** white, suffused and margined in red, ovate-trilobed, 6 mm long, 3 mm wide, the apical lobe obtuse, verrucose, denticulate, the lateral lobes erect, broadly rounded, the disc with a pair of erect, longitudinal calli between the lateral lobes, the base callous with a deflexed claw, bilobulate at the membranous base, hinged to the column-foot; **column** white, slender, semiterete, 5.5 mm long, dentate at the apex, the foot thick, 2 mm long.

ECUADOR: **Pichincha**: epiphytic in cloud forest between Calacalí and La Liberia, alt. 2100 m, 7 Apr. 1984, *C. Luer, A. Hirtz, S. Dalström & T. Höijer 10011* (Holotype: MO); same area, alt. 1800 m, 14 May 1988, *C. Luer, A. Hirtz & W. Flores 13324* (MO); Nanegalito, alt. 1600 m, 6 Dec. 1984 *A. Hirtz 2166* (MO). **Imbabura**: Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4238* (K, MO); Selva Alegre, alt. 1300 m, Sept., 1989, *A. Hirtz 4503* (K, MO).

This long-creeping species is now found relatively commonly on the western slopes of the Andes near Quito, Ecuador, an area presumably well botanized, where it had not been recognized prior to 1984. Whether or not it had been passed over for a creeping *Stelis* (there are many similar ones), or simply had been missed is not

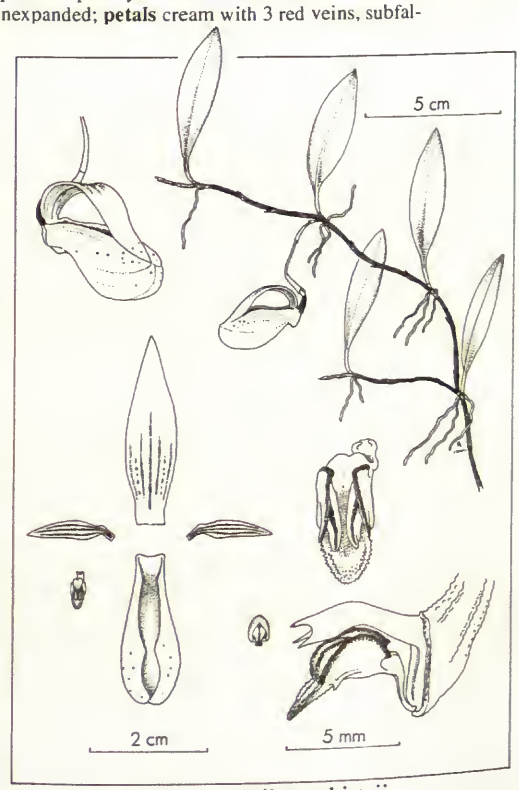


Fig. 1. Epibator hirtzii

known. The "rhizome" is actually a chain of superposed ramicauls at the annulus of which the leaf (with the distal segment of ramicaul between the annulus and abscission layer) extends, a root emerges, the flower is borne, and the next ramicaul arises. The vine-like plant often reaches over a meter in length. The leaves are narrowly elliptical and pointed.

The single, large, yellow flower hangs limply by the peduncle. The dorsal sepal is connate at the apex to the apex of the concave synsepal, thus creating large, lateral windows. The dorsal sepal is free from the synsepal at the base. The petals are falcate. The lip is sagittate with erect, broadly rounded lateral lobes, and with a pair of carinae between them.

Epibator serpentinus (Luer & Hirtz) Luer, comb. nov.

Bas.: *Zootrophion serpentinum* Luer & Hirtz, Amer. Orchid Soc. Bull. 53: 1297, 1984.

Ety.: From the Latin *serpentinus*, "like a serpent," referring to the habit and flowers.

Plant medium in size, epiphytic, long-repent, forming tangled masses up to 0.5-1 meter long; roots few, slender. Ramicauls slender, creeping, prostrate or pendent, proliferating and rooting from an annulus 3-5 mm below the abscission layer, 1.5-2.5 cm long, enclosed by 3-4, closely applied, tubular sheaths. **Leaf** erect, coriaceous, broadly elliptical to suborbicular, petiolate, obtuse, 16-26 mm long, 10-18 mm wide, the broadly cuneate base contracted into a petiole 2-6 mm long. **Inflorescence** a solitary, dark red flower borne by a slender, pendent peduncle 10-15 mm long, from the annulus below the abscission layer; floral bract tubular, 4 mm long; pedicel 3 mm long, with an aborted bud; ovary 5 mm long; **sepals** dark red-purple, glabrous, the dorsal sepal elliptical, acute, 17 mm long, 7 mm wide, connate to the synsepal apically for 5 mm, free at the base, creating widely patent lateral openings, the lateral sepals completely connate into a deeply concave, inflated, obtuse, pyriform synsepal 15 mm long, 9 mm wide unexpanded; **petals** cream, marked with purple along the veins and margins, subfalcate-elliptical, acute, 11 mm long, 3.75 mm wide, obtusely angled above the claw; **lip** white, suffused and margined in red, ovate-trilobed, 5.5 mm long, 2.5 mm wide, the apical lobe obtuse, verrucose, denticulate, the lateral lobes erect, broadly rounded, the disc with a pair of erect, lunate calli between the lateral lobes, the base callous with a deflexed claw, bilobulate at the membranous base hinged to the column-foot; **column** white, slender, semiterete, 5 mm long, dentate at the apex, the foot thick, 2 mm long.

ECUADOR: **Pichincha**: epiphytic in cloud forest near Tandapi, alt. 1500 m, Feb. 1984, A. Hirtz 1540, flowered in cultivation in Quito, 8 Apr. 1984, *C. Luer 10024* (Holotype: MO); above Tandapi, alt. 1500 m, 31 Mar. 1985, *C. Luer, J. Luer & A. & X. Hirtz 11017* (MO). **Imbabura**: wet forest between Carolina and Buenos Aires, alt. 1950 m, 17 Jan. 1987, *C. Luer, J. Luer, A. Hirtz et al. 12354* (MO); wet forest between Carolina along a stream below Tandapi, alt. 1180 m, 31 Jan. 1987, *C. Luer, J. Luer & A. Hirtz 12556* (MO).

This long-creeping species is closely related to, but less frequent than *E. hirtzii*, with which it is sympatric in the Andes west of Quito. As in *E. hirtzii*, the rhizome is actually a chain of superposed ramicauls at the annulus of which the leaf, a root, the flower, and the next ramicaul arise. The vine-like plant often forms dense entanglements in which the flower can be difficult to find. The distantly

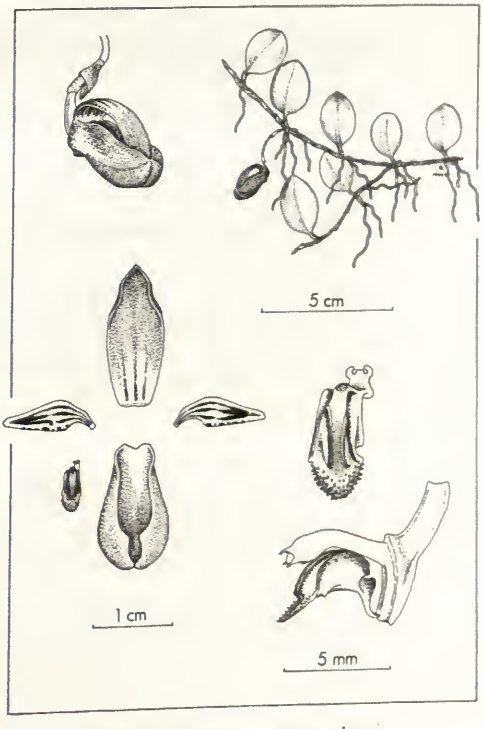


Fig. 2. Epibator serpentinus

spaced leaves are broadly elliptical to suborbicular. The smaller, single, dark red flower, sometimes in a loose, successively two-flowered raceme, hangs by a short peduncle. The dorsal sepal connate at the apex to the apex of the concave synsepal, but free at the base, creates smaller, lateral windows. The petals and lip are similar to those of *E. hirtzii*.

Epibator ximenae Luer & Hirtz, sp. nov.

Ety.: Named in honor of Ximena de Hirtz of Quito, Ecuador, co-collector of this species.

Species haec *E. hirtzii* (Luer) Luer similis, sed foliis minoribus latioribusque, et sepalis albis purpureo maculatis differt.

Plant medium in size, epiphytic, long-repent, up to 1 meter or more long; roots few, slender. Ramicauls slender, creeping, prostrate or ascending, proliferating and rooting from an annulus 2 mm below the abscission layer, 2.5-5 cm long, enclosed by 3-4, closely applied, ribbed, tubular sheaths. **Leaf** erect, coriaceous, elliptical to elliptical-ovate, petiolate, subacute to obtuse, 2-4.5 cm long, 1.5-2 cm wide, broadly cuneate below or rounded, contracted into a petiole 3-4 mm long. **Inflorescence** a large, single flower, or a loose, successively 2-flowered raceme, borne by a slender, peduncle 15-25 mm long, from the annulus below the abscission layer; floral bract tubular, 4 mm long; pedicel 4-5 mm long, with an aborted bud; ovary carinate, 3-5 mm long; **sepals** translucent white or pale rose, spotted with purple, suffused with purple toward the apex, glabrous, the dorsal sepal elliptical, acute, 25-31 mm long, 9-11 mm wide, connate or adherent to the synsepal apically for 2-3 mm, free at the base, creating widely patent lateral openings, the lateral sepals completely connate into a concave, inflated, obtuse, cymbiform synsepal 20-25 mm long, 11-13 mm wide unexpanded, 12 mm deep; **petals** cream, spotted with purple, subfalcate-elliptical, acute, 12 mm long, 3 mm wide, obtusely angled on the lower margin above the claw; **lip** spotted with purple, ovate-trilobed, 5 mm long, 2.5 mm wide, the apical lobe obtuse, verrucose, denticulate, the lateral lobes erect, broadly rounded, the disc with a pair of erect, longitudinal calli between the lateral lobes, the base with a low callous above a deflexed claw, bilobulate at the membranous base, hinged to the column-foot; **column** white, slender, semiterete, 5 mm long, bidentate at the apex, the foot thick, 2 mm long.

ECUADOR: **Carchi**: epiphytic in forest north of Río Mira, between Guallupe and Parambas, alt. 900 m, 16 Feb. 1996, *A. Hirtz & X. Hirtz 6294* (Holotype: MO), C. Luer illustr. 17841; west of Tulcán toward Maldonado, alt. 1500 m, Sept. 1998, *A. Hirtz 6627* (MO).

This species of northern Ecuador is closely related to *E. hirtzii* and *E. serpentinus* found in north-central Ecuador. The creeping "rhizome" of superposed ramicauls is similar to both, but the leaves are broad, more similar to those of *E. serpentinus*. The flower is as large as that of *E. hirtzii*, but translucent white or rose in color with purple spots and suffusion. The tip of the dorsal sepal is connate to the apex of the synsepal a shorter distance with the blade of the dorsal sepal arcuate over a more deeply inflated synsepal. The petals and lip of the three species are similar.

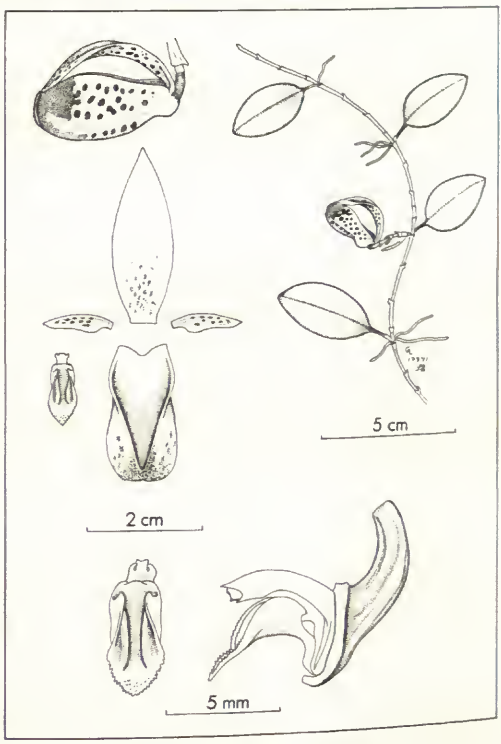


Fig. 3. Epibator ximenae

SYSTEMATICS OF *OPHIDION* (ORCHIDACEAE)

ABSTRACT

The genus is described, and a key to the species is given. Each species is described and illustrated with a black and white drawing.

The genera *Ophidion* and *Zootrophion* were segregated simultaneously from *Cryptophoranthus* Barb.Rodr. in 1982, because of vegetative and floral differences. The first of the four species included in *Ophidion* to be described was published by Kränzlin as *C. pleurothallopsis* in 1925 from a collection near Medellín, Colombia, by Lehmann. The species was described again from the same area by Garay in 1970 as *C. auriculatus*. Three additional species were described in 1980 and 1981.

Vegetatively, the genus is characterized by ramicauls shorter than the elliptical leaves. The racemose inflorescence emerges laterally from the ramicaul with an annular ring. The raceme is weak, drooping, loosely and successively flowered. The tip or apical portion of the dorsal sepal is connate to the apical portion of the boatlike synsepal, so that lateral openings to the interior of the flower are provided.

Connation of the apex of the dorsal sepal to the apex of the synsepal has evolved independently several times in the Pleurothallidinae. Most notable are the species attributed to *Pleurothallis* section *Cryptophoranthus*, *Pleurothallis alexii* A.H. Heller, *P. crinita* Barb.Rodr., *P. jalapensis* (Kraenzl.) Garay, *P. tribuloides* (Sw.) Lindl., and the genera *Epibator* Luer, *Ophidion*, and *Zootrophion*.

The most distinguishing feature of *Ophidion* is the morphology of the proportionately large lip. It is superficially similar to that of *Restrepia* Kunth with a blade-like epichile and a concave hypochile, except that the lateral lobes of the hypochile are auriculate instead of narrowly acute or hair-like. As in *Restrepia*, the base of the hypochile is inflexibly and thickly connate to the pedestal-like column-foot, so that the lip is held rigidly within the cavity of the synsepal, nearly filling it. Also similar to *Restrepia*, the column of *Ophidion* is slender, semiterete, thickened toward the apex with a hooded anther and stigma. The column-foot is thick or pedestal-like with the apex of the ovary. The pair of obovoid pollinia is provided with a minute viscidium.

Ophidion Luer, Selbyana 7: 79, 1982.

Type: *Cryptophoranthus cymbula* Luer, Phytologia 46: 346, 1980.

Ety.: From the Greek *ophidion*, "a little snake," in allusion to the appearance of the flowers.

Plants perennial, small to medium in size, epiphytic, caespitose, the rhizome abbreviated; roots slender. Ramicauls erect, short to nearly as long as the leaf, non-pseudobulbous, unifoliate, partially enclosed by loose, ribbed, tubular sheaths. **Leaf** erect, coriaceous, smooth, green, more or less elliptical, the apex acute to subacute, shallowly notched with a mucro in the sinus, the base cuneate into a petiole. **Inflorescence** a weak, loose, successively few- to several-flowered raceme, with the flowers resupinate, variously colored, borne by a slender peduncle that emerges laterally from the ramicaul with an annulus near the apex below the abscission layer or near the base; floral bracts thin, infundibular, oblique, acute; pedicels slender, longer than the floral bract; ovary smooth or shallowly grooved, trivalvate; **sepals** variously colored, glabrous externally, sometimes minutely pubescent within, the dorsal sepal with the acute apex connate to the apex of the synsepal to form lateral openings into the flower, the lateral sepals connate into a concave, boatlike synsepal; **petals** simple, more or less obovate, acute to obtuse; **lip** thick, oblong-subpandurate, trilobed, divided into an epichile and a hypochile by a pair of auriculate, lateral lobes, with the epichile bladelike, glabrous to villous, with the hypochile shorter, concave, the base broadly and thickly inflexibly attached to the column-foot; **column** slender, arching, semiterete, clavate, the apex winglike dilated, the anther and stigma ventral, the pollinia 2, obovoid, with a minute viscidium, the base of the column thick, pedestal-like with the apex of the ovary.

This genus consists of four species found in the Andes of Colombia and Ecuador.

BINOMIALS PUBLISHED IN *OPHIDION*

O. cunabulum (Luer & R.Escobar) Luer.....Fig. 1.
O. cymbula (Luer) Luer.....Fig. 2.
O. dasyglossum (Luer & R.Escobar) Luer.....Fig. 3.
O. pleurothallopsis (Kraenzl.) Luer.....Fig. 4.

KEY TO THE SPECIES OF *OPHIDION*

1 Inflorescence emerging from near the base of the ramicaul.....*O. cunabulum*
1' Inflorescence emerging from near the apex of the ramicaul..... 2

2 Epichile of the lip concave ..... *O. cymbula*
2' Epichile of the lip not concave 3

3 Epichile of the lip glabrous to minutely pubescent.....*O. pleurothallopsis*
3' Epichile of the lip shaggy-villous..... *O. dasyglossa*

Ophidion cunabulum (Luer & R.Escobar) Luer, Selbyana 7: 79, 1982.

Bas.: *Cryptophoranthus cunabulum* Luer & R.Escobar, Orquideología 14: 114, 1981.

Ety.: From the Latin *cunabulum*, "a cradle," in allusion to the appearance of the flower.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, 2-4 cm long, enclosed by 2-3 loose, ribbed, tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute, petiolate, 6-13 cm long including the petiole 1.5-3.5 cm long, 1.5-2.3 cm wide, cuneate below into the slender petiole. **Inflorescence** a weak, more or less creeping or pendent, loose, successively few- to several-flowered raceme, 3-8 cm long, borne by a slender peduncle, from near the base of the ramicaul; floral bracts infundibular, oblique, acute, 5 mm long; pedicels slender, 5-6 mm long; ovary shallowly grooved, 3 mm long; **sepals** yellow, spotted with red-purple, glabrous, the dorsal sepal narrowly ovate, acute, arching, 20 mm long, 6 mm wide, connate to the synsepal for 0.5 mm at the base and for 1-3 mm at the apex to form wide lateral windows, the lateral sepals completely connate into a broadly obovoid, concave, boatlike synsepal, 20 mm long, 12-14 mm wide, with the apex incurved; **petals** purple, obovate-spathulate, obtuse, 8 mm long, 3 mm wide; **lip** yellow-orange, dotted with red-brown, 3-lobed, 15 mm long, 6.5 mm wide, the lateral lobes below the middle, erect, retrorse, rounded, the epichile flat, obovate, obtuse, cellular-glandular, the hypochile concave, with the base thickened, broadly fixed to the column-foot; **column** slender, arching, semiterete, 6 mm long, with the apex dilated, the anther and stigma ventral, the base of the column thick, pedestal-like with the apex of the ovary.

COLOMBIA: **Antioquia**: Frontino, collected Nov. 1975 by J. Kuhn, R. Escobar et al., flowered in cultivation at J & L Orchids, Easton, CT, 11 Nov. 1977, *C. Luer 2165* (Holotype: SEL); same collection, flowered in cultivation at J & L Orchids, 25 Apr. 1987, *C. Luer 12831* (MO); without collection data, flowered in cultivation at La Estrella by O.J. Arango, *R. Escobar 1845* (JAUM); same collection, flowered in cultivation 8 Oct. 1977, *C. Luer 1949* (SEL).

This species produces flowers larger than most others of the genus, and the only species that produces the inflorescence from low on the ramicaul. The inflorescence creeps among vegetative debris and bears a large-windowed, yellow, red-spotted flower. The gaping, lateral windows permit an unobstructed view of the petals, lip and column within. Any animal creeping through the vegetative debris would have no trouble entering the flower.

Ophidion cymbula (Luer) Luer, Selbyana 7: 80, 1982.

Bas.: *Cryptophoranthus cymbula* Luer, Phytologia 46: 346, 1980.

Ety.: From the Latin *cymbula*, "a little boat," referring to the shape of the lip.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, 1.5-2.5 cm long, enclosed by 2-3 thin, ribbed, tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute, slightly acuminate, 3.5-5 cm long including a petiole less than 1 cm long, 1.2-1.5 cm wide, acuminate below into the petiole. **Inflorescence** a loose, successively 2- to 3-flowered raceme, up to 6.5 cm long, including the slender peduncle, from near the apex of the ramicaul; floral bracts tubular, 3-4 mm long; pedicels slender, 6-9 mm long; ovary curved, 3 mm long; **sepals** greenish white, suffused with red-purple, glabrous externally, with short, red, glandular hairs within, the dorsal sepal narrowly ovate-triangular, acute, 11 mm long, 3.5 mm wide, free at the base, connate to the synsepal above the middle to form lateral windows in the proximal half of the flower, the lateral sepals completely connate into a deeply concave, ovoid, obtuse, bicarinate, boatlike synsepal, 11 mm long, 5 mm wide unexpanded; **petals** translucent yellow-white, suffused with rose, obovate-spathulate, 5 mm long, 2 mm wide, the apex obtuse, abruptly acuminate-acute, slightly twisted; **lip** white, suffused with red along the margins with glandular cells, 3-lobed, 11 mm long, 4 mm wide (10 mm long, 3 mm wide unexpanded), the blade or midlobe elliptical, subacute, concave, the lateral lobes above the basal quarter, erect, oblique, rounded, 1 mm long, the hypochile or basal quarter below the lateral lobes concave, truncate, broadly fixed to the column-foot; **column** greenish white, suffused with purple, slender, 4 mm long, with the apex dilated, toothed, the anther and stigma ventral, the base of the column thick, pedestal-like with the apex of the ovary.

ECUADOR: **Pichincha**: epiphytic in forest near Santo Domingo, alt. 530 m, 22 July 1979, *C.H. Dodson, H.H. Morgan & T. Dodson 8551* (Holotype: SEL), flowered in cultivation, 10 Dec. 1979, C. Luer illustr. 4817.

This apparently rare species is known only from the original collection. It is most closely allied to the common and widely distributed *O. pleurothallopsis*, but it is easily distinguished from the latter by the the non-spotted flowers that are cellular-glandular within, and by the large, concave blade of the lip that completely fills the cavity of the synsepal.

Ophidion dasyglossum (Luer & R.Escobar) Luer, Selbyana 7: 80, 1982.

Bas.: *Cryptophoranthus dasyglossus* Luer & Escobar, Orquideología 14: 116, 1981.

Ety.: From the Greek *dasyglossa*, "a shaggy tongue," referring to the densely vollous lip.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, 2-5.5 cm long, enclosed by 1-2 long, loose, tubular sheaths, as well as a basal sheath, juvenile leaves spotted with purple. **Leaf** erect, thinly coriaceous, elliptical, acute, petiolate, 6-10 cm long including the petiole 1-2.5 cm long, 1.5-2 cm wide, narrowly cuneate below into the petiole. **Inflorescence** an arching, loose, successively 3- to 4-flowered raceme, up to 4 cm long, including the slender peduncle ca. 1.5 cm long, from near the apex of the ramicaul; floral bracts tubular, oblique, 3-4 mm long; pedicels slender, 5-9 mm long; ovary 3 mm long; **sepals** white, spotted with purple, glabrous externally, with patches of red, glandular hairs within, the dorsal sepal narrowly ovate, acute, carinate, arching with recurved sides, 20 mm long, 5 mm wide, free at the base, connate to the synsepal for 1 mm at the base and for 2-3 mm at the apex to form wide lateral windows, the lateral sepals completely connate into a broadly obovoid, acute, concave, boatlike synsepal, 19 mm long, 9 mm wide; **petals** translucent white with purple dots, obovate, acute, 6 mm long, 2.25 mm wide; **lip** maroon, 3-lobed, 14 mm long, 3.5 mm wide, the lateral lobes below the middle in the lower fifth, erect, slightly retrorse, rounded, 1.5 mm long, the epichile obovate, obtuse, densely long-villous, the hypochile concave, with the base truncate, broadly fixed to the column-foot; **column** slender, arching, semiterete, 6 mm long, dilated at the apex, the anther and stigma ventral, the base of the column thick, pedestal-like with the apex of the ovary.

COLOMBIA: **Chocó**: without specific locality, collected by Padre S. Restrepo, cultivated at La Ceja by M. & O. Robledo, *R. Escobar 1627* (Holotype: JAUM); same collection, flowered in cultivation 15 Oct. 1977, *C. Luer 2033* (SEL).

Although florally similar to *O. cunabulum*, this species produces its weak inflorescence from near the apex of the ramical instead of near the base. The flowers of both species are distinguished by large, wide windows through which the lip is visible. The dark purple epichile of lip of *O. dasyglossum* is covered by a blanket of dense, shaggy hairs.

Ophidion pleurothallopsis (Kraenzl.) Luer, Selbyana 7: 80, 1982.

Bas.: *Cryptophoranthus pleurothallopsis* Kraenzl., Kew Bull. 115, 1925.

Ety.: Named for a supposed similarity to the genus *Pleurothallis*.

Syn.: *Cryptophoranthus auriculatus* Garay, Orquideología 5: 16, 1970.

Ety.: From the Latin *auriculatus*, "with ears," referring to the lobes of the lip.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, 1-6 cm long, enclosed by 2-3 ribbed, tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute, petiolate, 3-9 cm long including the petiole 0.5-2 cm long, 0.9-2.5 cm wide, cuneate below into the petiole. **Inflorescence** a loose, successively 2- to 8-flowered raceme, up to 1-8 cm long, including the slender peduncle, from near the apex of the ramicaul; floral bracts tubular, 2-4 mm long; pedicels slender, 3-8 mm long; ovary 2-3 mm long; **sepals** whitish, mottled and suffused with purple, glabrous externally, cellular-glandular within, the dorsal sepal obovate, acute, 7-15 mm long, 3-6 mm wide, free at the base, connate toward the apex to the synsepal 1-3.5 mm to form lateral windows, the lateral sepals completely connate into a deeply concave, ovoid, obtuse, bicarinate, boatlike synsepal, 8-15 mm long, 4-7 mm wide unexpanded; **petals** translucent, mottled with purple, obovate-spathulate, subacute to obtuse, 3-7.5 mm long, 1.5-3 mm wide; **lip** white, spotted with purple, cellular-glandular to minutely short-pubescent, 3-lobed, 6-12 mm long, 1.75-4 mm wide, the blade or midlobe elliptical, obtuse, the lateral lobes above the basal quarter, erect, oblique, rounded, the hypochile or basal quarter below the lateral lobes concave, truncate, broadly fixed to the column-foot; **column** greenish white, marked with purple, slender, 3-5.5 mm long, with the apex dilated, the anther and stigma ventral, the base of the column thick, pedestal-like with the apex of the ovary.

COLOMBIA: **Antioquia**: epiphytic in dense, humid forest near San Gregorio and Nariño, alt. 2000-2400 m, *F. C. Lehmann 7272* (Holotype: K); near Medellín, Colombia, *G. Escobar 399* (holotype of *C. auriculatus*: AMES); near Medellín, without collection data, flowered in cultivation by M. & O. Robledo at La Ceja, 7 Oct. 1977, a large variation, *C. Luer 1948* (SEL); Briceño, Quebrada El Oro, flowered in cultivation by M. & O. Robledo at La Ceja, 8 Oct. 1977, a small variation, *C. Luer 1950* (SEL); Munic. of Dabeiba, near Dabeiba, alt. 1800 m, collected Mar. 1987 by H. Angarita, *R. Escobar 4061* (MO); Munic.

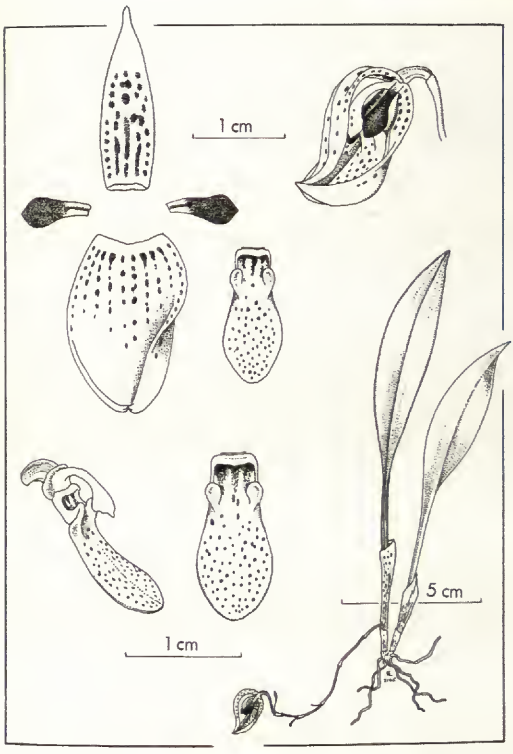


Fig. 1. Ophidion cunabulum

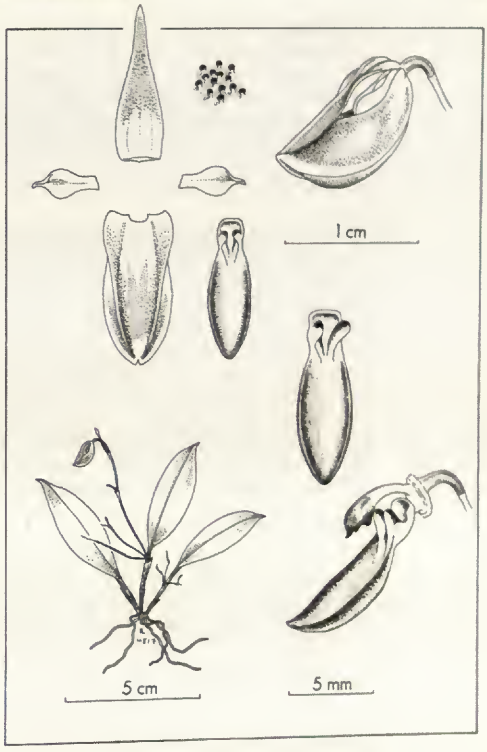


Fig. 2. Ophidion cymbula

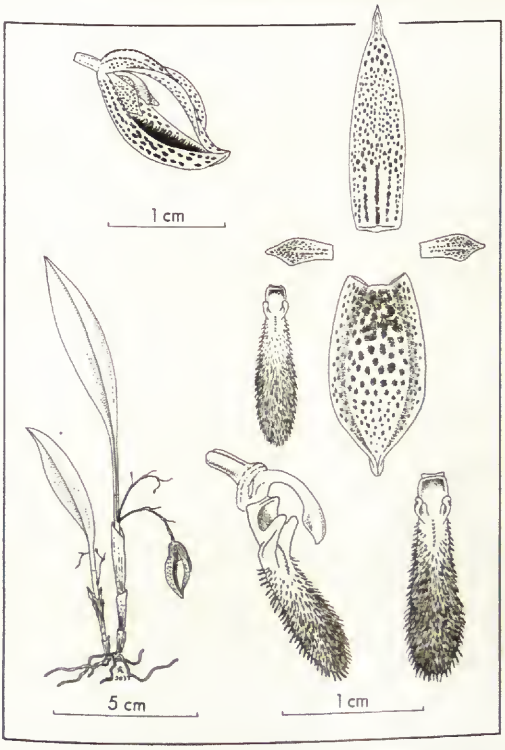


Fig. 3. Ophidion dasyglossum

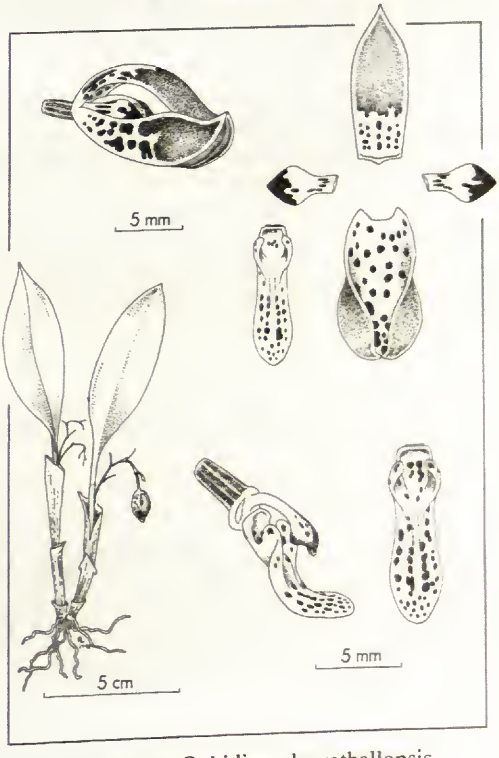


Fig. 4. Ophidion pleurothallopsis

of Yarumal, road to El Cedro, alt. 1850 m, 15 Mar. 1989, *C. Luer, J. Luer, S. Dalström & W. Teague 14158* (MO); Parqué Nac. Nat. "Las Orquídeas," Río Calles, alt. 1250-1375 m, 31 May, 1988, *A. Cogollo & J. Ramírez 3107* (JAUM, MO). **Valle del Cauca**: between Cali and Buenaventura, alt. 1500 m, 1 July 1965, *C.H. Dodson & H. Hills 3202* (SEL); Lago Calima, cultivated at Colomborquídeas, 16 May 1993, *R. Escobar 1989* (MO). **Nariño**: above abandoned Magnesium mine, east of Ricaurte, alt. 1800 m, 1 Nov. 1979, *C. Luer, J. Luer & A. Hirtz 4508* (K, SEL); Río Coteje and Timbiquí, Nov., *F.C. Lehmann s.n.* (K).

PANAMA: **Darién**: ridge north of Cerro Pirre, alt. 1050-1200 m, 11 July 1977, *R.L. Dressler 5656* (MO).

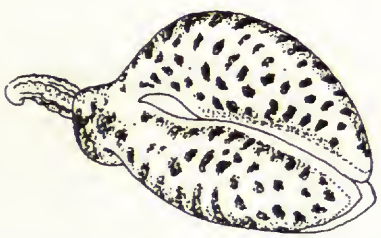
VENEZUELA: **Bolívar**: above Río Venamo, alt. ca. 1200 m; Aonda Valley, Auyantepui, alt. 900 m; road to Sta. Elena de Uairén, alt. ca. 1350 m, all fide *G.C.K. Dunsterville 1192*.

ECUADOR: **Carchi**: Chical, alt. 1200 m, cultivated by Ecuagenera, 2 Feb. 2002, *A. Hirtz 8061* (MO). **Esmeraldas**: west of Lita, alt. 800 m, 13 Aug. 1986, *A. Hirtz 2922* (MO). **Imbabura**: near Lita on railroad between Ibarra and San Lorenzo, alt. 600 m, 15 Aug. 1986, *A. Hirtz 2922* (MO); south of Lita toward Santa Rosa de Cachaco, alt. 1300 m, 19 Mar. 1991, *C. Luer, J. Luer & A. Hirtz 15173* (MO); along Río Los Cedros, alt. 1500-1800 m, 16 Mar. 1992, *S. Dalström 1646* (MO); same area, alt. 1700 m, 21 Jan. 1993, *S. Dalström, T. Höijer & H. Wanntorp 1718* (MO). **Napo**: road to Coca north of Archidona, alt. 1200 m, 13 Apr. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11229* (MO). **Morona-Santiago**: between San Juan Bosco and Gualaceo, alt. 2800 m, 28 Mar. 1985, *C. Luer, J. Luer, A. Hirtz & W. Flores 11004* (MO); west of Macas, new road to Guamote, alt. 1600 m, 1 Mar. 2001, *C. Luer, J. Luer & A. Hirtz 19593* (MO). **Zamora-Chinchipe**: Cordillera del Condor, east of Los Encuentros, alt. 1450 m, 18 May 1988, *C. Luer, A. Hirtz et al. 13428* (MO, QCNE); above Río Jamboe south of Zamora, alt. 1550 m, 22 Jan. 1992, *C. Luer, J. Luer, P. Jesup, A. Jesup & A. Hirtz 16101* (MO); Nambija, alt. 1300 m, Feb. 1987, *A. Hirtz 3307* (MO).

BOLIVIA: **Cochabamba**: Chapare, northeast of Cochabamba toward Villa Tunari, alt. 1500 m, 17 Jan. 1988, *C. Luer, J. Luer, R. Vásquez et al. 12866* (K, MO). **La Paz**: Larecaja, above Tipuani, above Unutuluni, alt. 1150 m, 29 Aug. 1991, *C. Luer, J. Luer, R. Vásquez, A. Hirtz, J. Del Hierro & W. Weague 15378* (MO).

This species is relatively common and variable both vegetatively and florally through the Andes from the Darién of eastern Panama into central Bolivia. Although it is not recorded from Peru, it certainly must exist there also.

Small plants with ramicauls less than one centimeter long with leaves only four centimeters long contrast with plants with ramicauls over six centimeters long with leaves up to nine centimeters long. The length of the raceme varies from no more than one centimeter long to eight centimeters long. The size of the flowers varies accordingly, with the sepals from seven to 15 millimeters in length. In all, however, the morphology is basically similar. The blade of the lip is practically glabrous in some specimens, and shortly pubescent in others.



SYSTEMATICS OF THE GENUS *ZOOTROPHION* (ORCHIDACEAE)

ABSTRACT

A history of the genus *Zootrophion* Luer is given and the genus is described. A key to the subgenera and species is given. Each species is described and illustrated with a black and white drawing, and a distribution map is included for each species.

New species and new combinations:
Zootrophion alvaroi (Garay) Luer, comb. nov.
Zootrophion argus (Rchb.f. ex Kraenzl.) Luer, comb. nov.
Zootrophion beloglottis (Schltr.) Luer, comb. nov.
Zootrophion lappaceum Luer & R.Escobar, sp. nov.
Zootrophion niveum Luer & Hirtz, sp. nov.
Zootrophion vasquezii Luer, sp. nov.

The first species of the genus to be described was a cultivated plant imported from Jamaica that Professor Lindley attributed to *Specklinia* as *S. atropurpurea* in 1836. He reduced it to *Pleurothallis* six years later. Dubbed the "Windowed Masdevallia," Hooker described another collection from Jamaica as *M. fenestrata* (Lindley *in ed.*) in the Botanical Magazine in 1845 (not to be confused with the later *Cryptophoranthus fenestratus* by Barbosa Rodrigues). He characterized the species "with the sepals united below and at the apex, leaving a small space much below the apex, which is open and window-like; the whole representing the head of a bird, with a perforation where the eyes should be."

The next three species with similar "eyes" were Andean in origin and described by Professor Reichenbach in 1875, 1878 and 1880 as *Masdevallia gracilenta, M. hypodiscus* and *M. dayana* respectively.

Meanwhile in Brazil in 1877, Barbosa Rodrigues described *Pleurothallis cryptantha* and *P. fenestrata*, both species with flowers also with lateral windows. In 1882, he proposed the genus *Cryptophoranthus* to accommodate them and added *C. punctatus* as a third member, but he did not indicate one for the type. (*Pleurothallis fenestrata* was designated the lectotype in 1939.) Bentham reduced *Cryptophoranthus* to *Pleurothallis* in *Genera Plantarum* in 1883.

In 1887, two years before Reichenbach's death, Rolfe resurrected *Cryptophoranthus* by transferring Lindley's first species and Reichenbach's next three species from *Masdevallia* to *Cryptophoranthus* and added *C. maculatus* from Brazil. No doubt Reichenbach was annoyed. The 40-odd species subsequently added to *Cryptophoranthus* by various authors during the next century were a mixed lot. The sepals of many were connate at the apex, but species with free apices were also included.

As typified by the Brazilian *C. fenestratus*, *Cryptophoranthus* is characterized by a ramicaul that is much shorter than a gradually petiolate, fleshy leaf, and clad by two or three thin, tubular sheaths. The inflorescence emerges from the ramicaul without an annular ring near or below the middle of the ramicaul. The flowers form lateral windows with the apex of the dorsal sepal connate to the synsepal. The petals are obovate or spathulate. The lip, free within the interior of the flower, is triangular or sagittate and hinged to the column-foot. The ovaries are pubescent and terete, not lamellate-crested.

Segregated from *Cryptophoranthus* in 1982 because of significantly differing morphological features, *Zootrophion* is distinguished by well-developed ramicauls as long as an abruptly petiolate leaf, and enclosed by several, more or less compressed, inflated, imbricating sheaths with oblique ostia, similar to those of totally unrelated *Restrepia*. The inflorescence arises with an annular ring near the apex of the ramicaul a short distance below the abscission layer.

The lateral sepals are connate to their tips to form a boat-like synsepal to which the dorsal sepal is connate both at the base and at the apex (with one exception), thus forming lateral windows into the interior of the flower. Adherence of the tip of the dorsal sepal to the synsepal to form lateral windows has developed more than once in other pleurothallids. The petals are broad, acute to obtuse. Although hinged to the column-foot, the sagittate lip fits within a cavity at the base of the floor of the synsepal. The ovaries are variously lamellate-crested.

As considered here, *Zootrophion* consists of eighteen species scattered through the neotropics, all at relatively low altitudes, usually below 1500 meters above sea level. One species, *Z. atropurpureum*, has a disrupted distribution, occurring locally in the Greater Antilles and southern Brazil. In the Andes, some collections are intermediate among *Z. dayanum, Z. endresianum*, and *Z. hypodiscus*. Attribution of these species can be faulty, even with hydration of a flower.

In 1984, two long-repent, vegetatively distinct species were added to the genus. In these species, the inflorescence appears to be borne from the rhizome at the base of a ramicaul, and this is the annulus from whence the next ramicaul springs. Connate only at the tips, the dorsal sepals are free from the laterals to create wide windows. The lateral lobes of the unguiculate lip are tall and broadly rounded. These two and a third species are treated in *Epibator*.

Zootrophion Luer, Selbyana 7: 80, 1982.

Type: *Specklinia atropurpurea* Lindl., Edwards' Bot. Reg. 28: Misc. 81, 1842.

Ety.: From the Greek *zootrophion*, "a menagerie," in allusion to the flowers that resemble the heads of an assortment of animals.

Syn.: *Masdevallia* sect. *Fenestratae* Rchb.f., Gard. Chron. 2: 98, 1875.

Ety.: From the Latin *fenestratus*, "windowed," referring to the lateral openings in the flower.

Plants perennial, small to large, epiphytic, shortly-repent, to caespitose with more or less fasciculated ramicauls with the rhizome abbreviated; roots thin to fleshy. Ramicauls erect, elongate, non-pseudobulbous, unifoliate, mostly or completely enclosed by 5 to 8 glabrous, loose, more or less compressed, imbricating, oblique, inflated sheaths, the inflorescence emerging laterally with an annulus from near the apex, the leaf-ramicaul abscission layer. **Leaf** erect, coriaceous to thickly coriaceous, smooth, green, often suffused with purple, more or less elliptical, oblong, or ovate, the apex acute, subacute, or obtuse, shallowly notched with a mucro in the sinus, the base contracted into a short petiole. **Inflorescence** a solitary flower or a raceme, successively or more or less simultaneously few-flowered, the flowers resupinate, borne by a peduncle with a bract near the middle; floral bracts infundibular or tubular, acute; pedicels longer or shorter than the floral bract; ovary costate or lamellate, the lamellae smooth to crisped or denticulate, trivalvate; **sepals** conspicuous, fleshy-rigid, carinate or smooth, glabrous, pubescent or spiculate, variously colored, the dorsal sepal connate in various degrees both above and below the middle to the synsepal (with one exception), forming lateral apertures of various sizes, the laterals connate completely into a three-sided synsepal with a wedge-shaped cavity at the base within which the lip resides; **petals** small and inconspicuous, more or less oblong, subacute to obtuse; **lip** fleshy, trilobed or sagittate, with the lobes near or below the middle, and with longitudinal calli on the middle third, the apical third ovate, acute to obtuse, the basal third oblong, variously callous above the base, hinged to the apex of the column-foot; **column** semiterete, the apex dentate, the anther, rostellum and stigma ventral; pollinia 2, obovoid, with a minute viscidium, the base of the column produced into a thick foot with the apex of the ovary, often concave between a pair of calli.

BINOMIALS PUBLISHED IN *ZOOTROPHION*

Z. alvaroi (Garay) Luer.....Fig. 1.
Z. argus (Rchb.f. ex Kraenzl.) Luer.....Fig. 2.
Z. atropurpureum (Lindl.) Luer.....Fig. 3.
Z. beloglottis (Schltr.) Luer.....Fig. 4.
Z. dayanum (Rchb.f.) Luer.....Fig. 5., 6.
Z. dodsonii (Luer) Luer.....Fig. 7.
Z. endresianum (Kraenzl.) Luer.....Fig. 8.
Z. gracilentum (Rchb.f.) Luer.....Fig. 9.
Z. griffin Luer.....Fig. 10.
Z. hirtzii Luer & Hirtz = **Epibator hirtzii**
Z. hypodiscus (Rchb.f.) Luer.....Fig. 11.
Z. lappaceum Luer & R.Escobar.....Fig. 12.
Z. leonii D.E. Bennett & Christenson.....no material available
Z. niveum Luer & Hirtz.....Fig. 13.
Z. oblongifolium (Rolfe) Luer.....Fig. 14.
Z. serpentinum Luer & Hirtz = **Epibator serpentinus**
Z. trivalve (Luer & Escobar) Luer.....Fig. 15.
Z. vasquezii Luer.....Fig. 16.
Z. vulturiceps (Luer) Luer.....Fig. 17.
Z. williamsii Luer.....Fig. 18.

BINOMIALS PUBLISHED IN *CRYPTOPHORANTHUS* ATTRIBUTABLE TO *ZOOTROPHION*

C. alvaroi Garay
C. argus Rchb.f. ex Kraenzl.
C. atropurpureus (Lindl.) Rolfe
C. beloglottis Schltr.
C. dayanus (Rchb.f.) Rolfe
C. dodsonii Luer
C. endresianus Kraenzl.
C. gracilentus (Rchb.f.) Rolfe
C. hologlottis sphalm.
C. hypodiscus (Rchb.f.) Rolfe
C. lehmannii Rolfe = *Z. dayanum*
C. lepidotus L.O.Williams = *Z. gracilentum*
C. moorei Rolfe = *Z. hypodiscus*
C. oblongifolius Rolfe
C. rolfeanus Kraenzl. = *Z. hypodiscus*
C. schenckii Cogn. = *Z. atropurpureum*
C. trivalvis Luer & Escobar
C. vulturiceps Luer

BINOMIALS PUBLISHED IN *MASDEVALLIA* ATTRIBUTABLE TO *ZOOTROPHION*

M. dayana Rchb.f.
M. fenestrata Lindl. ex Hook.
M. gracilenta Rchb.f.
M. hypodiscus Rchb.f.
M. atropurpurea Lindl. (also has been published in *Pleurothallis* and *Specklinia*)

KEY TO THE SPECIES

1 Sepals smooth externally, if carinate, the carinae smooth.....2
1' Sepals with carinae erose or fringed 12

2 Dorsal sepal free without forming windows.....*Z. niveum*
2' Dorsal sepal connate to the synsepal forming windows.....3

3 Sepals with large windows, rugose-verrucose within.....4
3' Sepals with small windows above or below the middle, smooth within.....5

4 Flower 5-6.5 cm long; sepals with thin, smooth carinae externally.....*Z. argus*
4' Flower ca. 2 cm long: sepals not carinate externally.....*Z. leonii*

5 Sepals with windows above the middle.....6
5' Sepals with windows below the middle 10

6 Flower obovoid with bottom concave and lower margins incurved.....7
6' Flower ellipsoid with lower margin curved out.....8

7 Sepals snow white; lip with the callus smooth.....*Z. vulturiceps*
7' Sepals purple; lip with the callus verrucose.....*Z. atropurpureum*

8 Sepals pale rose; column-foot without a pair of calli.....*Z. vasquezii*
8' Sepals yellow to dark purple; column-foot with a pair of calli.....9

9 Pedicels 7-10 mm long; sepaline window a narrow slit.....*Z. alvaroi*
9' Pedicels 2-3 mm long; sepaline window elliptical.....*Z. williamsii*

10 Sepals sharply smooth-carinate along midveins.....*Z. oblongifolium*
10' Sepaline tube not sharply carinate.....11

11 Sepaline tube slender, obovoid, sepals not inflated.....*Z. dodsonii*
11' Sepaline tube ovoid with each sepal more or less inflated.....*Z. trivalve*

12 Flower 2.5-5 cm long; windows more than half as long as the flower.....13
12' Flower 1.2-3 cm long; windows less than half as long as the flower.....14

13 Sepals purple; lip with an erect callus above the base; column-foot not concave between prominent call .....*Z. dayanum*
13' Sepals yellow, marked with purple; lip with a low callus above base; column-foot concave between a pair of calli.....*Z. endresianum*

14 Flower broader than long; sepals with markedly erose-fringed carinae.....
.....*Z. lappaceum*
14' Flower longer than broad; sepals with erose carinae.....15

15 Flower obovoid; windows very small, less than 3 mm long.....*Z. griffin*
15' Flower ellipsoid; windows a third to half as long as the flower.....16

16 Lip with the basal callus erect, acute; column-foot not concave between a pair of prominent calli .....*Z. beloglottis*
16' Lip with the basal callus low; column-foot concave between a pair of prominent calli.....17

17 Flower greater than 2 cm long.....*Z. hypodiscus*
17' Flower less than 1.5 cm long.....*Z. gracilentum*

Zootrophion alvaroi (Garay) Luer, comb. nov.

Bas.: *Cryptophoranthus alvaroi* Garay, Orquideología 5: 15, 1970.

Ety.: Named for Alvaro Mejía of Medellín, Colombia, who collected and cultivated this species.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 3-7 cm long, enclosed by 4-5 inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, sometimes suffused with purple, the blade elliptical, petiolate, subacute to obtuse, 3-10 cm long, 2.5-4 cm wide, cuneate below into a petiole 1-2.5 cm long. **Inflorescence** a single flower produced successively, borne by a peduncle 8-10 cm long, from near the apex of the ramicaul with an annulus, 2 flowers often produced simultaneously; floral bract tubular, loose, 6-10 mm long; pedicel 6-8 mm long; ovary 6-lamellate, 3-6 mm long; **sepals** pure yellow to pure deep purple, glabrous, glandular-cellular within, ecarinate, the dorsal sepal obovate, concave, acute, 20-35 mm long, 8-10 mm wide, connate to the lateral sepals 13-16 mm below a narrow, lateral aperture 3-5 mm long, connate 5-8 mm above the aperture to the apex into an ovoid, box-like flower with a subacute apex, the lateral sepals completely connate into a rigid, scaphoid synsepal, 22-30 mm long, 12-17 mm wide unexpanded; **petals** translucent, yellow to purple, oblong-subquadrate, truncate to broadly obtuse, with a short, acuminate apiculum, 3-4 mm long, 2.5 mm wide, 3-veined; **lip** yellow or purple, oblong-sagittate, 3-lobed, 4.5 mm long, 1.5 mm wide unexpanded, 2.5 mm wide across the lateral lobes expanded, the apical lobe acute, minutely verrucose-denticulate, the lateral lobes below the middle, erect, narrowly triangular, narrowly rounded, retrorse, the disc with longitudinal, intramural calli that terminate with the lateral lobes, with a low callus microscopically cellular above the base, the base minutely bilobulate, hinged to the column-foot; **column** yellow or purple, stout, semiterete, 2.5 mm long, bidentate at the apex, the foot red, thick, concave between a pair of rounded, marginal calli below the middle.

COLOMBIA: **Antioquia**: without locality, collected and cultivated in Medellín by Alvaro Mejía s.n., *G. Escobar 372* (Holotype: AMES); same collection, cultivated in Medellín, 23 Oct. 1979, *A. Mejía s.n.* (SEL), C. Luer illustr. 4315. **Chocó**: Bahia Solano, without collection data, flowered in cultivation by M. & O. Robledo at La Ceja, 5 Oct. 1977, *C. Luer 1909* (SEL).
ECUADOR: **Pichincha**: south of Santo Domingo toward Quevedo, alt. 450 m, 24 May 1976, *C.H. Dodson, H. & H. Morgan 6051* (SEL). **Los Ríos**: near Patricia Pilar, alt. 540 m, 30 May 1976, flowered in cultivation at Río Palenque, Nov. 1979, *C.H. Dodson 6115* (SEL), C. Luer illustr. 4826.

This species occurs on the Western slopes of the Andes of Colombia and Ecuador. Vegetatively, it is similar to most other species of the genus with elliptical leaves borne by ramicauls clad in loose, oblique, infundibular sheaths. Large, smooth, obovoid flowers that vary from pure yellow to pure purple are produced singly, or in simultaneous pairs. The windows are narrow and above the middle. The petals are subquadrate. The lateral lobes of the lip are oblong, obtuse and retrorse, and adjacent to a pair of calli on the middle third of the lip. The callus of the claw is flat. The distal half of the column-foot bears a pair of calli.

Zootrophion argus (Rchb.f. ex Kraenzl.) Luer, comb. nov.

Bas.: *Cryptophoranthus argus* Rchb.f. ex Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 437, 1921.

Ety.: Named for Argus, the Greek mythological monster with a thousand eyes.

Syn.: *Masdevallia argus* Rchb.f. ex Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 438, 1921.

Plant large, robust, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 8-12 cm long, enclosed by 5-6 dark brown, inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, petiolate, obtuse, 10-16 cm long including the petiole 2 cm long, 6-9 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower produced successively, borne by a peduncle 1-1.5 cm long, from near the apex of the ramicaul with an annulus; floral bract oblique, inflated, acute, 16 mm long; pedicel 12 mm long; ovary fimbriate-costate, 10 mm long, 5 mm broad; **sepals** white, diffusely spotted and suffused with purple, the larger spots with lighter purple centers, glabrous, smooth-carinate, connate above and below a large lateral aperture into a gaping, box-like flower with an acute, decurved apex, the dorsal sepal ovate, arcuate, acute, 65 mm long, 30 mm wide expanded, connate to the synsepal apically for 17 mm and basally for 7 mm, creating gaping apertures 40 mm long, the lateral sepals connate into a concave, subacute, 3-sided synsepal, 45 mm long, 27 mm wide unexpanded, the interior dark yellow, convex, transversely rugose-verrucose; **petals** translucent white, spotted with purple, oblong, obtuse, 5 mm long, 3.5 mm wide, 4-veined; **lip** white, oblong-sagittate, 3-lobed, 5 mm long, 2 mm wide, the apical half obtuse, verrucose, denticulate, the margins of the lower middle erect with longitudinal, intramural calli that terminate with erect, narrowly rounded lateral lobes, the disc with an erect, verrucose, acute, conical callus above the base, the base bilobulate, hinged to the column-foot; **column** white, dotted with purple, stout, semiterete, 3.5 mm long, bidentate at the apex, the foot thick, longitudinally concave.

COLOMBIA: Old province of Ocaña: near Ocaña, alt. 1650 m, Oct. 1851, *L. Schlim 762* (Lectotype here designated: K; Isolectotypes: W, NY). **Antioquia**: Frontino, *Falkenburg s.n.* (W). Without collection data, cultivated at Colomborquídeas, El Retiro, Colombia, 8 May 1985, *C. Luer 11301* (MO).

When Kränzlin published this species posthumously for Reichenbach in 1921, he cited a mixture of three collections from the Eastern Cordillera of Colombia by Schlim: *Schlim 760* from near San Pedro, and *Schlim 762* and *Schlim 764* from near Ocaña. *Schlim 760* and *Schlim 764* are at W and identified as *Masdevallia dayana* (*Z. dayanum*). Specimens of *Schlim 762*, a distinctly different species, are at both K and W. The huge flowers of this collection are covered with dark spots, the larger of which have a light center, no doubt reminding Reichenbach of many eyes, for he wrote *Masdevallia Argus* on the herbarium sheet of *Schlim 762* at Kew. In his own herbarium Reichenbach had only a drawing of the petals and lip. Kränzlin's published description of this species in *Cryptophoranthus* applies to *Z. dayanum*.

The specimen illustrated here is cultivated by Colomborquídeas near Medellín, Colombia, but without collection data. The species is distinguished by the very large habit that otherwise does not differ greatly from most of the other species of the genus. The flowers are immense with windows more widely gaping. The sepals are finely carinate along the veins, but these carinae are smooth, neither serrulate nor fringed. The larger of the numerous purple spots covering the dorsal sepal have the lighter centers that suggested the numerous eyes of the giant Argus to Reichenbach. Visible through the huge, gaping windows, the synsepal within is dark yellow, convex and coarsely rugose-verrucose. The lip with the acute, erect callus on the claw is basically similar to that of *Z. dayanum*.

Zootrophion atropurpureum (Lindl.) Luer, Selbyana 7: 80, 1982.

Bas.: *Specklinia atropurpurea* Lindl., Bot. Reg. 21, sub. t. 1797, 1836.

Ety.: From the Latin *atropurpureus*, "dark purple," referring to the color of the flower.

Syn.: *Pleurothallis atropurpurea* (Lindl.) Lindl., Bot. Reg. 28: Misc. 81, 1842.

Syn.: *Masdevallia fenestrata* Lindl. ex Hook., Curtis's Bot. Mag. t. 4164, 1845.

Ety.: From the Latin *fenestratus*, "with windows," referring to the sepaline tube.

Syn.: *Cryptophoranthus atropurpureus* (Lindl.) Rolfe, Gard. Chron. 2: 693, 1887.

Syn.: *Cryptophoranthus schenckii* Cogn., Bull. Soc. Roy. Bot. Belgique 43: 304, 1907.

Ety.: Named in honor of the Brazilian collector, Schenck, who discovered this species.

Syn.: *Zootrophion schenckii* (Cogn.) Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 15: 69, July 1986.

Syn.: *Zootrophion schenckii* (Cogn.) F.Barros, Anais do VI Congresso de Sociedade Botânica de Sâo Paulo 114, 1986.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 4-7 cm long, enclosed by 4-6 loose, inflated, tubular sheaths with oblique ostia. **Leaf** erect, coriaceous, more or less suffused with purple beneath, elliptical to elliptical-obovate, acute to rounded at the apex, 6-10 cm long, 2-3.5 cm wide, the base cuneate, contracted into a petiole 1-1.5 cm long. **Inflorescence** single-flowered, 1-3 successive or simultaneous flowers; peduncles 10-15 mm long, from near the apex of the ramicaul with an annulus; floral bract oblique, inflated, 5-6 mm long; pedicel 4-7 mm long; ovary costate with the ribs slightly erose or irregular, 4-5 mm long, 2.5-3 mm wide; **sepals** deep purple to deep purple-brown, fleshy, rigid, connate above and below a lateral aperture into an obovoid, more or less arcuate tube, with the apex acute, the dorsal sepal elliptical, concave, acute, 17-20 mm long, 3.5 mm wide, 6 mm wide expanded, connate to the synsepal apically for 4-5 mm, and basally for 10-12 mm, creating narrow, lateral windows above the middle 3-4 mm long, the lateral sepals completely connate into a concave, arcuate, 3-sided synsepal, 15-18 mm long, 6.5-8.5 mm wide unexpanded, with a shallow, triangular cavity at the base to accommodate the lip; **petals** translucent with purple midvein, oblong-subquadrate, broadly obtuse, sometimes shortly acuminate, 4-5 mm long, 2.25-3 mm wide; **lip** dark red-purple, oblong-sagittate, 3-lobed, 4.5-5 mm long, 1.5-2 mm wide, the apex acute, microscopically verrucose, the margins of the middle third with erect, retrorse, oblong lobes with rounded tips, the disc with a pair of longitudinal calli on the middle third, the disc below the middle thick, minutely verrucose, the base truncate with small, obscure lobules at the corners, hinged to the column-foot; **column** red, stout, semi-terete, 2.5-3 mm long, bidentate at the apex, the anther, rostellum and stigma ventral, the foot thick, channeled between a pair of calli on the distal half of the column-foot.

JAMAICA: Without collection data, cultivated at the Liverpool Botanical Garden, (Holotype: K); without locality, 1843, flowered in cultivation Oct. 1844 at Kew Gardens, *Purdie s.n.* (holotype of *M. fenestrata*: K); Mabess River, alt. 4,000 ft., 12 Dec. 1899, *W. Harris 7626* (K). Middlesex Co.: Stann Parish, Holly Mount, Mt. Diablo, alt. 3,000 ft., 30 Aug. 1905, *W. Harris 9891* (AMES, C, K, NY, P); Holly Mount, 19 Sept. 1906, *N.L. Britton 772* (AMES, NY); Mt. Diablo, alt. 2000-2300 ft., 21 Jan. 1958, *R.A. Howard & G.R. Proctor 15140* (AMES); epiphytic on Mt. Diablo, alt. 830 m, 11 Nov. 1985, *C. Luer, J. Luer, P. Jesup & A. Jesup 11480* (MO); without locality, collected by H. Brown, flowered in cultivation by P. & A. Jesup in Bristol, CT, 10 Dec. 1988, *C. Luer 13804* (MO);
CUBA: Oriente, near villa Monte Verde, Jan.-July 1859, *C. Wright 652* (AMES, BR, K, P); between La Perla and Pinales de Monte Verde, alt. 660 m, 16 Feb. 1911, *J.A. Schafer 8836* (AMES, NY).
HAITI: Massif du Nord, St. Louis du Nord, Morne Barron, alt. 950 m, 19 Aug. 1925, *E.L. Ekman 4672* (AMES, K, S).
DOMINICAN REPUBLIC: Sierra de Yaroa ridge, alt. 850 m, Nov. 1968, *D.D. Dod 3* (AMES, NY); La Lanza between Monteada Nueva and Polo, alt. 900-1000 m, 27 Feb. 1969, *A.H. Liogier 14311* (NY); Loma del Puerto, Pedro García, alt. 800 m, 3 May 1969, *A.H. Liogier 15062* (AMES, NY, P); Cordillera Central, Mahoma between Peravia anf San Cristobal provinces, 12 Aug. 1986, *T. Zanoni, M. Mejía & J. Pimentel 22633* (NY).
BRAZIL: **Rio de Janeiro**: epiphytic in the Organ Mountains near Theresópolis, *Schenck 2705* (holotype of *Z. schenckii*: ?BR); Petrópolis, Araras, camino de Capoeirão, alt. 700 m, 26 Nov. 1977, *G. Martinelli 3020* (RB, RJ). **Espírito Santo**: Pedra Azul, alt. 1000 m, 22 Apr. 1970, *R. Kautsky 260* (RJ). **Paraná**: Rio Cetia, alt. 450 m, 29 Nov. 1966, *G. Hatschbach 14147* (RJ). **São Paulo**: Boraceia, Ilhabela - Caraguatutuba, 14 Apr. 1963, *B.A. Ghillany 20341* (RJ); Fazenda F. Brasil, near Pilar do Sul, alt. 250 m, 21 Apr. 1965, *Grupo de Piracicaba 10606* (M, SP); Bertoiga - São Sebastian, 25 Apr. 1973, *P.G. Windisch 352* (RJ); Bertioga, Boracéia Beach, alt. ca. 5 m, *M. Campacci, V.P. Castro, C. & J. Luer 18185* (MO). **Santa Catarina**: Insula Santa Catarina near Lagao Perí, 18 June 1954, *P.J.A. Rohr 2260* (RJ).

This, the first species of the genus to be described, was published as *Specklinia atropurpurea* by Lindley in 1836 from a specimen in Hooker's herbarium. It had been obtained from Jamaica without collection data, and it had flowered in cultivation in the Liverpool Botanic Garden. The illustration published in the *Botanical Magazine* in 1842, when it was described as *Masdevallia fenestrata*, was made from a Jamaican collection by Purdie in 1843, the plants having flowered at the Royal Botanical Gardens at Kew the following year. The illustration published by Veitch in *A Manual of Orchidaceous Plants*, part V, page 8, is *Z. gracilentum*, not *Z. atropurpureum*.

Zootrophion atropurpureum is found in the Greater Antilles, and southern Brazil, the species from both distant regions being indistinguishable. The habit is usually relatively large and robust with elliptical leaves about as long as the ramicauls. The deep purple flowers vary somewhat in size and are borne singly and successively. The sepaline tube is smooth externally, but microscopically cellular. The lateral windows are proportionately small and narrow and mostly above the middle. The sepaline tube is more or less arcuate and acute at the apex. The lip is sagittate with retrorse marginal lobes below the middle, confluent with longitudinal calli on the middle third. Above the base the disc is minutely papular. The column-foot is thick with the apex of the ovary, and concave between a pair of thick rounded, parallel calli toward the tip.

Zootrophion beloglottis (Schltr.) Luer, comb. nov.

Bas.: *Cryptophoranthus beloglottis* Schltr., Repert. Spec. Nov. Regni Veg. Beih. 8: 50, 1921.

Ety.: From the Greek *beloglottis*, "arrow-head tongue," referring to the shape of the lip.

Syn.: *Cryptophoranthus hologlottis* Schltr. apud Kraenzl., Repert. Spec. Nov. Regni Veg. Beih. 34: 225, 1925, *sphalm.*

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 3-11 cm long, enclosed by 4-5 inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, more or less suffused with purple beneath, broadly elliptical, petiolate, obtuse to rounded at the apex, 5-9 cm long, 2-5 cm wide, the base rounded, contracted into a petiole 1-1.5 cm long. **Inflorescence** usually single-flowered, 1-3 successive or simultaneous flowers, occasionally 2 flowers borne by 1 peduncle; peduncles 5-10 mm long,

from near the apex of the ramicaul with an annulus; floral bract oblique, inflated, acute, 3-5 mm long; pedicel 3-5 mm long; ovary costate with the ribs erose-spiculate, 3 mm long; **sepals** deep purple, carinate along the veins with the carinae erose, connate above and below a lateral aperture into an ellipsoid, box-like flower with an acute apex, the dorsal sepal elliptical, concave, acute, 17-19 mm long, 5-6 mm wide expanded, connate to the synsepal apically and basally creating lateral windows on the middle third about half the length of the flower, the lateral sepals completely connate into a concave, subacute, 3-sided synsepal, 17-18 mm long, 7 mm wide unexpanded, with a triangular cavity at the base to accommodate the lip; **petals** translucent with purple midvein, oblong-subquadrate, broadly obtuse, shortly acuminate, 3-3.75 mm long, 1.8-2 mm wide; **lip** red, oblong-sagittate, 3-lobed, 3-3.5 mm long, 1.5 mm wide, the apical third acute, minutely denticulate, verrucose, the margins of the middle third erect with longitudinal, intramural calli that terminate with erect, triangular, obtuse, lateral lobes, with an erect, triangular, acute, serrated callus above the base, the base hinged to the column-foot; **column** red, stout, semiterete, 2.5 mm long, bidentate at the apex, the anther, rostellum and stigma ventral, the foot thick, without calli.

ECUADOR: **Chimborazo**: subandine forest above Riobamba, *L. Mille s.n.* (Holotype: destroyed at B). PERU: **Huánuco**: near Tingo Maria, collected by Fred Fuchs, Jr., Dec. 1974, flowered in cultivation 12 Nov. 1977 at J & L Orchids, Easton, CT, *C. Luer 2167* (SEL).

This species is probably more frequent than the few specimens found in herbaria would indicate. The distribution is within that of the frequent and variable *Z. hypodiscus* from which it is indistinguishable without dissecting the flower. Both species are characterized by variable, elliptical, petiolate leaves borne by stout ramicauls with a series of infundibular sheaths. The medium-sized flower is dark purple with erose carinae along the veins, and a medium-sized window about a third to a half as long as the flower. The apex of the flower is not decurved as it usually is in *Z. hypodiscus*. The basal callus of the lip of *Z. beloglottis* is erect, triangular, acute, and serrated, and the column-foot lacks calli. The basal callus of the lip of *Z. hypodiscus* is low, obtuse and verrucose, and the column-foot is concave between a pair of prominant calli.

Zootrophion dayanum (Rchb.f.) Luer, Selbyana 7: 82, 1982.

Bas.: *Masdevallia dayana* Rchb.f., Gard. Chron. new series 14: 295, 1880.

Ety.: Named in honor of Mr. John Day of London who submitted the plant with watercolor painting to Reichenbach.

Syn. *Cryptophoranthus dayanus* (Rchb.f.) Rolfe, Gard. Chron. 2: 693, 1887.

Syn.: *Cryptophoranthus lehmannii* Rolfe, Orchid Rev. 11: 303, 1903.

Ety.: Named in honor of its collector, Consul F.C. Lehmann.

Plant large, robust, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, often superposed, 7-15 cm long, enclosed by 4-5 inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, petiolate, obtuse, 8-13 cm long including the petiole 1-1.5 cm long, 4-7.5 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower produced successively, borne by a peduncle 1-1.5 cm long, from near the apex of the ramicaul with an annulus; floral bract oblique, inflated, acute, 5-7 mm long; pedicel 10 mm long; ovary fimbriate-costate, 6 mm long, 3 mm broad; **sepals** diffusely spotted and suffused with purple, minutely denticulate-carinate along the veins, connate above and below a large lateral aperture into an ovoid, box-like flower with an acute, decurved apex, the dorsal sepal ovate, arcuate, acute, 25-50 mm long, 15-20 mm wide expanded, connate to the synsepal apically for 5-10 mm and basally for 5 mm, creating gaping lateral windows 20-30 mm long, the lateral sepals completely connate into a concave, obtuse, 3-sided synsepal, 20-40 mm long, 15-25 mm wide unexpanded, the interior purple, orange toward the base, convex, glabrous, occasionally minutely pubescent or verruculose; **petals** translucent orange, spotted with purple, oblong, obtuse, 4.5 mm long, 3 mm wide, 4-veined; **lip** yellow, oblong-sagittate, 3-lobed, 4.5 mm long, 1.5 mm wide, the apical half narrowly obtuse, minutely verrucose, denticulate, the margins of the middle third erect with longitudinal, intramural calli that terminate with erect, narrowly rounded lateral lobes, the disc with an erect, verrucose, acute, conical callus above the base, the foot thick, longitudinally concave.

COLOMBIA: Without locality, collected by J. Linden, purchased from Stevens' Rooms and cultivated by *John Day s.n.* (Holotype: W; Isotype: K). Old province of Ocaña, near San Pedro, *L. Schlim 760* (W); near Ocaña, *L. Schlim 764* (W); without locality, *G. Wallis s.n.* (W); without collection data, cultivated at J & L Orchids, Easton, CT, 11 Nov. 1977, *C. Luer 2166* (SEL); without data, cultivated at Colomborquídeas, Medellín, Colombia, 8 May 1983, *C. Luer 9062* (SEL). **Antioquia**: without details, *G. Schmidtchen*

s.n. (W); Yarumal, below Quebrada El Oro, alt. 1770 m, 20 May 1983, *R. Escobar 2640* (SEL). **Risaralda**: Pueblo Rico, alt. 1900 m, cultivated by the Robledos at La Ceja, 23 Oct. 1979, *C. Luer 4313* (SEL). **Cauca**; collected near Popayán, flowered in cultivation at the Glasnevin Botanic Gardens in 1899, *F.C. Lehmann, s.n.* (holotype of *C. lehmannii*: K); collected near Popayán by Amalia Lehmann, flowered in cultivation by M. & O. Robledo at La Ceja, 9 Apr. 1988, *C. Luer 13102* (MO). **Nariño**: Pipulquer west of Túquerres, alt. 1500-1800 m, *F.C. Lehmann 7050* (AMES).
VENEZUELA: **Táchira**: Alto de Buena Vista, Tamá, alt. 2250 m, collected by R. Mejía, June 1973, *G.C.K. Dunsterville 1280*
ECUADOR: **Carchi**: above Maldonado, alt. 2500 m, Nov. 1991, *A. Hirtz et al. 5648, 5651* (MO); between Maldonado and Chical, alt. 1200 m, cultivated at Ecuagenera, Gualaceo, *J. Portillo 2113* (MO). **Imbabura**: Selva Alegre, alt. 1400 m, May 1989, *A. Hirtz & X. Hirtz 4233* (MO); Los Cedros Reserve, alt. 1500-2000 m, Feb. 1993, *S. Dalström 2046* (MO). **Pichincha**: new road from Quito to Santo Domingo, alt. 2000 m, 2 Feb. 1978, *C. Luer, J. Luer & A. Hirtz 2439* (SEL); Canchacato near Rio Silante, alt. 2000 m, 28 Oct. 1979, *C. Luer, J. Luer & A. Hirtz 4401* (SEL). **Napo**: Río Jondachi, alt. 1000 m, 6 Dec. 2001, *A. Hirtz et al. 7943* (MO). **El Oro**: Cordillera de Amboca above Zaruma, alt. 1400-1700 m, *F.C. Lehmann 6934* (AMES); same data, *F.C. Lehmann 6933* (K); cloud forest above Zaruma, alt. 1800 m, 23 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 12030* (MO).
PERU: **Cuzco**: Convención, Amaibamba, alt. 1800 m, *C. Vargas 7548* (AMES).
BOLIVIA: **La Paz**: Sud Yungas, without locality, flowered in cultivation by D. Menato in Chulumani, 31 Jan. 1983, *C. Luer 8636* (SEL). **Cochabamba**: Chapare, between Cochabamba and Villa Tunari, alt. 1850 m, 17 Jan. 1984, *C. Luer, J. Luer & R. Vásquez 9404* (SEL).

This species was first collected in Colombia by M. Jean Linden of Ghent, Belgium. Plants were sold at Stevens' Rooms in London in 1872 as an undescribed species of *Restrepia*. Plants purchased by John Day flowered in his collection at Tottenham, England, in 1875, where he made a watercolor painting to add to his extensive portfolio of paintings of orchids (now in the herbarium at Kew). A specimen was sent to Reichenbach who named the species for Day posthumously.

Zootrophion dayanum is a large, robust species that produces large flowers with sepals most often between three and four centimeters long. The windows are always proportionately large. It is similar to *Z. argus*, but with smaller solid spots, finely serrulate carinae, and a synsepal that is not coarsely verrucose within. It is also similar to a large variation of *Z. hypodiscus*, but with an erect, acute callus above the base.

Zootrophion dodsonii (Luer) Luer, Selbyana 7: 82, 1982.

Ety.: Named in honor of Calaway H. Dodson who first discovered this species.

Syn.: *Cryptophoranthus dodsonii* Luer, Selbyana 5: 145, 1979.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls stout to slender, erect, 5-13 cm long, enclosed by 5-7 inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, more or less suffused with purple, elliptical, acute, shortly petiolate, 8-11 cm long including the petiole 1 cm long, 3-4 cm wide, the base cuneate into the petiole. **Inflorescence** a fascicle of single, successive flowers, borne by peduncles 5-15 mm long, from near the apex of the ramicaul with an annulus; floral bract tubular, 5-7 mm long; pedicel 7-8 mm long; ovary lightly verrucose, 3-5 mm long; **sepals** cream-colored, dotted with red along the veins, smooth, connate above and below a lateral aperture into a fusiform flower, the dorsal sepal ovate, concave, narrowly obtuse, 27-36 mm long, 7-9 mm wide expanded, connate to the synsepal apically for 20-23 mm and basally for 7-8 mm, creating narrow lateral apertures 3-4 mm long below the middle, the lateral sepals completely connate into an elliptical, concave, 3-sided synsepal, 27-36 mm long, 7-11 mm wide unexpanded, the back surface convex, the apex narrowly obtuse, shallowly bifid, with a triangular cavity at the base to accommodate the lip; **petals** translucent yellow-orange, oblong-subquadrate, subacute, lightly acuminate, 4.5 mm long, 2.75 mm wide; **lip** orange, brown at the apex, oblong-sagittate, 3-lobed, 4.5-5 mm long, 1.5 mm wide, the apical third narrowly obtuse, denticulate, verrucose, the margins of the middle third erect with longitudinal, intramural calli that terminate with erect, narrowly acute lateral lobes, the disc with a verrucose, pyramidal callus above the base, the base bilobulate, hinged to the column-foot; **column** yellow, stout, semiterete, 3 mm long, the pointed anther, rostellum and stigma ventral, the foot thick, concave between parallel calli.

ECUADOR: **El Oro**: epiphytic in cloud forest between Piñas and Santa Rosa, alt. 800 m, 9 Oct. 1979, *C.H. Dodson, A. Gentry & G. Schupp 9202* (Holotype: SEL), C. Luer illustr. 4815. **Imbabura**: near Lita, alt. 1000 m, cultivated by Ecuagenera, Gualaceo, 7 Mar. 2001, *C. Luer 19809* (MO). **Pichincha**: near Mindo, cultivated by Hugolino Oñate, *A. Hirtz 6617* (MO).
COLOMBIA: **Cauca**: without specific locality, flowered in cultivation by Amalia Lehmann in Popayán, 25 July 1978, *C. Luer 2965, 3003* (SEL).

This species is known from two widely separated localities: one in southern Colombia, the other in southern Ecuador. It is distinguished by the large habit with elliptical leaves slightly longer than the ramicauls. The successive, solitary, flesh-colored flowers are long and narrowly ovoid with an obtuse apex and with the narrow lateral apertures below the middle. The lip is sagittate with a verrucose, pyramidal callus above the base. The column-foot is longitudinally concave between parallel calli.

Zootrophion endresianum (Kraenzl.) Luer, Selbyana 7: 82, 1982.

Bas.: *Cryptophoranthus endresianus* Kraenzl., Repert. Spec. Nov. Regni Veg. 17: 437, 1921.

Ety.: Named in honor of A.R. Endres, noted nineteenth century illustrator and chronicler of Costa Rican orchids, who collected this species.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 6-11 cm long, enclosed by 5-6 inflated, loose, oblique, tubular sheaths. **Leaf** erect, coriaceous, often suffused with purple beneath, broadly elliptical, petiolate, obtuse to rounded at the apex, 7-14 cm long, 4-7 cm wide, the base broadly cuneate into a petiole 1-1.5 cm long. **Inflorescence** single-flowered, successive, 2-4 sometimes simultaneous; peduncles 2-3 mm long, from near the apex of the ramicaul with an annulus; floral bract oblique, inflated, acute, 12-17 mm long; pedicel 5-10 mm long; ovary 6-costate with the ribs markedly undulate, minutely erose, 10 mm long; **sepals** yellow, spotted with lilac, carinate along the veins with the carinae erose, connate apically and basally with the window more than half the length of the flower, the dorsal sepal elliptical, concave, acute, 23-40 mm long, 8-15 mm wide expanded; the lateral sepals completely connate into a concave, obtuse, apiculate, 3-sided synsepal, 18-34 mm long, 8-15 mm wide unexpanded, with a triangular cavity at the base to accommodate the lip; **petals** translucent yellow or purple, oblong-subquadrate, broadly obtuse, shortly acuminate, 4.5-5 mm long, 3-3.5 mm wide; **lip** yellow suffused with red, oblong-sagittate, 3-lobed, 5 mm long, 1.5 mm wide, the apical third acute, minutely denticulate, verrucose, the margins of the middle third erect with longitudinal, intramural calli that terminate with acute, retrorse, lateral lobes, the disc thickened and verrucose above the base, the base hinged to the column-foot; **column** yellow, stout, semiterete, 3 mm long, bidentate at the apex, the anther, rostellum and stigma ventral, the foot thick, concave between a pair of rounded calli.

COSTA RICA: without locality, flowered in cultivation by Messrs. Veitch in London, *A. Endres s.n.* (Holotype: K); without locality, ca. 1867, *A. Endres 563* (W); without locality, collected by John Hall, flowered by E. Marshall, 14 June 1976, *C. Luer 0695* (SEL); Río de la Hondura between la Laguna an Veintesiete, alt. 600-700 m, collected by C. Horich, flowered in cultivation at UC Botanical Garden at Berkeley, 12 Feb. 1960, *J. Bleydenstein s.n.* (AMES). **Heredia**: above Jeronimo, alt. ca. 1800 m, 18 Sept. 1979, *C. Luer, J. Luer, K.S. Walter & L. Glicenstein 4827* (SEL). **Cartago**: Tapantí, alt. ca. 1100 m, 1961, pressed from cultivated plants 15 Oct. 1961, *Kl. Horich s.n.* (MO); La Palma, alt. 1400-1550 m, 30 Oct. 1962, flowered at UC, 59.100-1, *Kl. Horich sn* (AMES, UC,K, MO).
NICARAGUA: **Jinotega**: Tuma Grade, alt. 960 m, *A.H. Heller 8588* (SEL). **Boaco**: Mombacito, 1 Jan. 1974, *J. Atwood & Neill 6958* (SEL).
COLOMBIA: **Valle del Cauca**: Buga, collector unknown, alt. 1600-1800 m, cultivated at Colomborquídeas 29 Jan. 1978, *C. Luer 2350* (SEL). Without locality, flowered in cultivation by Colomborquídeas, 21 Jan. 1978, *C. Luer 2297* (SEL).
ECUADOR: **Pastaza**: 20 Km east of Puyo, alt 1000 m, 14 Feb. 1979, *C. Luer, J. Luer & R. Escobar 3980* (SEL).

This species is the Central American counterpart of the common Andean *Z. hypodiscus*, from which it is indistinguishable vegetatively, and it also occurs occasionally in the Andes. It was first collected and illustrated by the noted collector A.R. Endres. It is distinguished by medium-sized to large yellow flowers spotted with lilac. The windows are long, and the apex of the flower curves up. The broad petals are shortly acuminate. The lateral lobes of the lip are very narrow, straight and retrorse. The callus on the claw of the lip is low and verrucose.

Zootrophion gracilentum (Rchb.f.) Luer, Selbyana 7: 82, 1982.

Bas.: *Masdevallia gracilenta* Rchb.f., Gard. Chron. 2: 98, 1875.

Ety.: From the Latin *gracilentus*, "small, or slender," referring to the habit of the plant.

Syn.: *Cryptophoranthus gracilentus* (Rchb.f.) Rolfe, Gard. Chron. 2: 693, 1887.

Syn.: *Cryptophoranthus lepidotus* L.O.Williams., Ann. Missouri Bot. Gard. 24: 340, 1942.

Ety.: From the Greek *lepidotus*, "covered with small scales," referring to the lip.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 3-7 cm long, enclosed by 4-5 loose, tubular sheaths. **Leaf** erect, coriaceous, more or less suffused with purple beneath, elliptical, petiolate, obtuse to rounded at the apex, 5-10 cm long, 2-3.5 cm wide, the base cuneate into a petiole 1-1.5 cm long. **Inflorescence** a single flower, or 1-4 single flowers produced simultaneously, borne by peduncles 5-10 mm long, from near the apex of the ramicaul with an annulus; floral bract oblique, inflated, acute, 4-5 mm long; pedicel 4-5 mm long; ovary 6-costate with the ribs markedly crested-undulate, 3 mm long; **sepals** deep purple, carinate along the veins with the carinae serrulate-spiculate, connate above and below a lateral aperture into an obovoid, box-like flower with a subacute apex, the dorsal sepal elliptical, concave, arcuate, subacute to rounded, 11-13 mm long, 5-6 mm wide expanded, connate to the synsepal apically for 4-5 mm and basally for 5-6 mm, creating lateral windows 3-4 mm long, near the middle and above the middle, the lateral sepals completely connate into a concave, obtuse, apiculate, 3-sided synsepal, 11-12 mm long, 7 mm wide unexpanded, with a triangular cavity at the base to accommodate the lip; **petals** translucent purple, oblong-subquadrate, broadly obtuse, shortly acuminate, 3.5-4 mm long, 2.5 mm wide; **lip** dark red, oblong-sagittate, 3-lobed, 4 mm long, 1.5 mm wide, the apical third minutely denticulate, verrucose, acute, the margins of the middle third erect with longitudinal, intramural calli that terminate with small, narrowly acute, retrorse, lateral lobes, the disc thickened and verrucose-papillose above the base, the base bilobulate, hinged to the column-foot; **column** red, stout, semiterete, 2-2.5 mm long, bidentate at the apex, the anther, rostellum and stigma ventral, the foot thick, longitudinally concave between a pair of rounded calli.

COSTA RICA: without locality, flowered in cultivation by Messrs. Veitch in London, *A.R. Endres s.n.* (Holotype: W). **Alajuela**: San Ramón, camino a San Carlos, ca. 1867, *A.R. Endres 36, sketch 73; 43, sketch 563* (W); San Carlos, Ciudad Quesada, cultivated by Kamuk Castro, 14 July 1994, *R.L. Dressler s.n.* (MO), C. Luer illustr. 17247. Without locailty, collected by John Hall, cultivated by Ernie Marshall, 14 June 1976, *C. Luer 0695* (SEL).
NICARAGUA: **Zelaya**: Cerro Musún, alt. 1200 m, *A. Heller 6320* (SEL).
PANAMA: **Coclé**: trail to Las Minas, hills north of El Valle de Antón, alt. 1000 m, 1 Sept. 1941, *P.H. Allen 2718* (holotype of *C. lepidotus*: AMES; isotype: MO); La Mesa north of El Valle del Antón, alt. 1000 m, 16 Sept. 1975, *H. Butcher s.n.* (MO). **Herrera**: hill above Chepo de las Minas, alt. 700 m, 19 Dec. 1977, *J.P. Folsom, R.B. Channell & G. Small 6874* (MO).

This species is another of Endres' collections of genera that had not yet been recognized during his time. The second species of the genus to be described, it was sent to Reichenbach by Endres in the nineteenth century. It is closely allied to the frequent *Z. hypodiscus* of the Andes, but differs with smaller flowers that are not arcuate, and with smaller windows.

Zootrophion gracilentum is characterized by a small to medium-sized habit with elliptical, petiolate leaves borne by ramicauls with a few, loose, tubular sheaths. The flowers are single, but a few are sometimes produced simultaneously. The ribs of the ovary are tortuously undulate. The purplish black flower is minutely erose along the carinate veins. The window is small, at and above the middle. The lobes of the lip are small, acute and retrorse, and the callus of the claw is papillose-verrucose. A pair of calli is present on the column-foot.

Zootrophion griffin Luer, Selbyana 7: 82, 1982.

Ety.: Named for a *griffin*, a mythological monster with the head of an eagle.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 3-5 cm long, enclosed by 4-5 inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, more or less suffused with purple beneath, broadly elliptical, petiolate, obtuse to rounded at the apex, 3-10 cm long, 2-4 cm wide, the base cuneate into a petiole 0.5-1.5 cm long. **Inflorescence** an abbreviated raceme of 1-3 successive or simultaneous flowers, borne by peduncles 5 mm long, from near the apex of the ramicaul with an annulus; floral bract oblique, inflated, acute, 4-5 mm long; pedicel 2-4 mm long; ovary 6-costate with the ribs markedly erose, 3-5 mm long; **sepals** deep purple from coalescing purple spots, carinate along the veins with the carinae asperous, connate above and below a small, lateral aperture into an obovoid, box-like flower with an acute apex, the dorsal sepal obovate, concave, arcuate, acute, 18 mm long, 5 mm wide expanded, connate to the synsepal apically for 4 mm and basally for 10 mm, creating small lateral apertures 2-3 mm long, above the middle, the lateral sepals completely connate into a concave, obtuse, 3-sided synsepal, 16 mm long, 8 mm wide unexpanded, with a triangular cavity at the base to accommodate the lip; **petals** translucent purple, oblong-subquadrate, broadly obtuse, acuminate, 4 mm long, 2.25 mm wide; **lip** dark red, oblong-sagittate, 3-lobed, 4.5 mm long, 2 mm wide, the apical third acute, minutely denticulate, verrucose, the margins of the middle third erect with longitudinal, intramural calli that terminate with retrorse, rounded lateral lobes, the disc with a tall, acute, verrucose, conical callus above the base, the base hinged to the column-foot; **column** red, stout, semiterete, 2 mm long, bidentate at the apex, the anther, rostellum and stigma ventral, the foot thick, without calli.

ECUADOR: **Napo**: epiphytic in wet forest near Río Jatunyaco west of Tena, alt. 600 m, 21 Feb. 1982, *C. Luer, A. Hirtz & X. Hirtz 6893, 6911* (Holotype: SEL); same locality and date, *C. Luer, A. Hirtz & X. Hirtz 6911* (SEL). **El Oro**: near Zaruma, collected 1989 by M. Whitten & F L Stevenson, cultivated in Chamblee, GA, 20 Nov. 1991, *M. Whitten 90215* (MO). **Zamora-Chinchipe**: Nambija, between Zamora and Gualaquiza, alt. 1000 m, Feb. 1985, *A. Hirtz 2219* (MO); trees along Río Zamora west of Zamora, alt. 1500 m, 20 Feb. 1986, *C. Luer, J. Luer, A. Hirtz, W. Flores & A. Embree 11960* (MO); along Río Jamboe, alt. 1400 m, 22 Jan. 1992, *C. Luer, J. Luer, A. Hirtz, P. & A. Jesup 16105* (MO).

This species is apparently endemic on the lower slopes of both eastern and western Ecuador. Vegetatively, it is similar to many of the other members of the genus, but it is distinguished by the relatively small, minutely spiculate, obovoid flowers with the ribs of the ovary erose-lacerate, and with very small windows above the middle. The solitary flowers are produced successively or up to three simultaneously. The lip is sagittate with an erect, acute, verrucose, conical callus on the claw above the base. The column-foot is without calli.

Zootrophion hypodiscus (Rchb.f.) Luer, Selbyana 7: 84, 1982.

Ety.: From the Latin *hypodiscus*, "the disc beneath," referring to the disclike floor of the flower.

Syn.: *Masdevallia hypodiscus* Rchb.f., Gard. Chron. 2: 234, 1878.

Syn.: *Cryptophoranthus hypodiscus* (Rchb.f.) Rolfe, Gard. Chron. 2: 693, 1887.

Syn.: *Cryptophoranthus moorei* Rolfe, Orchid Rev. 11: 304, 1903.

Ety.: Named in honor of F.W. Moore who cultivated the specimen at the Royal Botanic Gardens at Glasnevin.

Syn.: *Cryptophoranthus rolfeanus* Kraenzl., Kew Bull. 114, 1925.

Ety.: Named in honor of Robert Rolfe of the Royal Botanic Gardens at Kew.

Plant small, medium to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 3-7 cm long, enclosed by 4-5 inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, more or less suffused with purple, elliptical, petiolate, subacute to obtuse, 5-10 cm long including the petiole 1-2 cm long, 2-5.5 cm wide, the base cuneate into the petiole. **Inflorescence** a fascicle of 1-3 single flowers produced simultaneously or successively, borne by a peduncle 5-10 mm long, from near the apex of the ramicaul with an annulus; floral bract oblique, inflated, acute, 5-10 mm long; pedicel 3-6 mm long; ovary 3-6 mm long, 3 mm broad, with crisped-undulate ribs; **sepals** heavily spotted and suffused with dark purple, more or less whitish, yellow or orange toward the base, carinate along the veins with the carinae serrulate, connate above and below a lateral aperture into an ovoid, more or less arcuate, box-like flower with an obtuse, decurved apex, the dorsal sepal ovate, concave, arcuate, acute, 20-30 mm long, 8-12 mm wide unexpanded, connate to the synsepal apically for 5-10 mm and basally for 5-10 mm, creating lateral apertures 10 mm long, more or less near the middle, the lateral sepals completely connate into a concave, acute (often decurved), 3-sided synsepal, 18-34 mm long, 15-20 mm wide expanded, convex within, glabrous or minutely pubescent; **petals** translucent purple, oblong, obtuse, shortly acuminate, 4-5 mm long, 3-4.5 mm wide; **lip** purple, oblong-sagittate, 3-lobed, 4-5.5 mm long, 1.5-2 mm wide, the apical third acute to narrowly obtuse, minutely verrucose, denticulate, the margins of the middle third erect with longitudinal, intramural calli that terminate with acute, retrorse, lateral lobes, the disc thickened and verrucose above the base, the base bilobulate, hinged to the column-foot; **column** purple, stout, semiterete, 2.5-3 mm long, bidentate at the apex, the foot thick, concave between a pair of rounded, longitudinal calli on the distal half.

COLOMBIA: Without locality, flowered in cultivation by Stuart Low, *F.C. Lehmann s.n.* (Holotype: W). **Cauca**: collected near Popayán by Amalia Lehmann, flowered in cultivation at Colomborquídeas, 10 Apr. 1988, *C. Luer 13133* (MO). **Valle del Cauca**: Loboguerrero between Cali and Buenaventura, alt. 1200 m, flowered in cultivation by A. Villegas near Fitzebad, 12 Mar. 1989, *C. Luer 14123* (MO).
ECUADOR: **Napo**: between Cotundo and Coca, alt. 800 m, collected by A. Hirtz, flowered in cultivation at Rio Palenque Science Center, 17 June 1989, *C.H. Dodson & A. Hirtz 17406* (MO). **Pichincha**: near silver mines above Toachi, alt. 1000 m, 14 Mar. 1982, *C. Luer, A. Hirtz & S. Dalström 7348* (SEL). **Pastaza**: near Puyo, alt. 600 m, collected by Joe Brenner 121, flowered at SEL, 23 Mar. 1982, *C. Luer 7397* (SEL). **Morona-Santiago**: Cutucú, collected by Mike Madison, Jan. 1976, cultivated at SEL, 23 Mar. 1982, *C. Luer 7398* (SEL); new road east of Patuca road camp, alt. ca. 800 m, Aug. 1987, *R.L. Dressler s.n.* (MO); forest remnant above the Paute dam, alt. 1750 m, 25 Jan. 1989, *C. Luer, J. Luer, P. Jesup & A. Jesup 14073* (MO); between Mendez and Morona, alt. 800-1000 m, 22 Nov. 1989, *C.H. Dodson & A. Hirtz 18015* (MO); near Campamento Guarumales, alt. 1650 m, 24 May 1881, *C. Luer, J. Luer, A. Andreetta & L. Morocho 15242* (MO). **Azuay**: western Andes of Cuenca, forests of Chaca-Yaca, alt. 300-600 m, *F.C. Lehmann 4516* (holotype of *C. rolfeanus*: K). **Zamora-Chinchipe**: Cordillera del Condor, east of Los Encuentros, alt. 1500 m, 19 May 1988, *C. Luer, A. Hirtz, W. Flores, A. Andreetta & W. Teague 13492* (MO, QCNE). Without collection data, cultivated at Glasnevin, received from F.W. Moore, Sept. 1899, (holotype of *C. moorei*: K).

This species is variable and frequent in the Andes of Colombia and Ecuador. Living plants, presumably from Colombia, were received from Lehmann by Stuart Low, London. A plant flowered in 1878 and was described in *Masdevallia* by Reichenbach as a "stately member of the Fenestrata group."

Plants are characterized by elliptical leaves that vary greatly in size. The flowers, densely spotted and suffused with purple, also vary in size, mostly with sepals two to three centimeters in length when expanded. The window is large, about half the length of the sepals, more or less equidistant from the ends, or closer to the base. The flower is more or less arcuate with the apex decurved like the beak of a parrot. The floor of the synsepal is markedly convex. The veins are sometimes whitish, but always minutely erose. The petals are broad, obtuse, and shortly acuminate. The sagittate lip is basically similar to all other members of the genus, but the callus above the base is low and verrucose. Reichenbach described it as with "warts" resembling stones in "pavement." In common with *Z. atropurpureum*, *Z. endresianum*, and *Z. gracilentum*, the lower or distal half of the column-foot is concave between a pair of prominent calli. These calli are absent or vestigial in *Z. beloglottis*, *Z. dayanum* and *Z. griffin*.

Zootrophion lappaceum Luer & R.Escobar, sp. nov.

Ety.: From the Latin *lappaceus*, "bur-like," in allusion to the appearance of the flower.

Species haec *Z. hypodisco* (Rchb.f.) Luer affinis, sed sepalis latioribus profunde convexis, infra concavis, venis carinatis membranaceis maxime minute fimbriatis, et labello papilloso differt.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 5-6 cm long, enclosed by 4-6 loose, oblique, tubular sheaths. **Leaf** erect, coriaceous, elliptical, petiolate, obtuse at the apex, 7-9.5 cm long, 2-3.7 cm wide, the base cuneate into a petiole 2 cm long. **Inflorescence** single-flowered, successive; peduncles 8-10 mm long, from near the apex of the ramicaul with an annulus; floral bract oblique, acute, 10 mm long; pedicel 5-6 mm long; ovary 6-costate with the ribs markedly erose, 5-6 mm long, 3 mm thick; **sepals** dark purple, carinate along the veins with the carinae erose-fringed, connate apically and basally with the window below the middle, ca. 10 mm long, the dorsal sepal suborbicular, concave, acute, 30 mm long, 21 mm wide expanded; the lateral sepals completely connate into an arched, retuse, concave, transversely suborbicular, 3-sided synsepal with the floor convex, 18 mm long, 20 mm wide unexpanded, with a triangular cavity at the base to accommodate the lip; **petals** translucent purple, subquadrate, broadly obtuse, 4.5 mm long, 4.5 mm wide; **lip** purple, oblong-sagittate, 3-lobed, 3.5 mm long, 2 mm wide, the apical third acute, denticulate, verrucose, the margins of the middle third erect with longitudinal, intramural calli that terminate with acute, retrorse, lateral lobes, the disc verrucose, especially thickened and spiculate above the base, the base hinged to the column-foot; **column** stout, semiterete, 3 mm long, the anther, rostellum and stigma ventral, the foot thick, concave between a pair of parallel calli.

COLOMBIA: **Cundinamarca**: Guayabatal, alt. 1500 m, collected by E. Valencia, Apr. 1985, flowered in cultivation by M. & O. Robledo at La Ceja, 19 Mar. 1989, *C. Luer 14289* (Holotype: MO); flowered in cultivation by Colomborquídeas, *R. Escobar 5076* (MO).

Vegetatively, this species is not remarkably distinct from the majority of the others of the genus. Closely related to *Z. hypodiscus*, the flower is also dark purple, but instead of ellipsoid, the flower is disc-shaped and obvoid, broader than long, about twice as broad as the sepals of *Z. hypodiscus*. It is deeply concave on the undersurface of the synsepal with a decurved apex, similar to the flowers of *Z. hypodiscus*, but to a greater degree. The carinae along the veins are tall and deeply erose-lacerate, giving the flower a prickly appearance. The window is large and mostly below the middle. Except for an increase in intensity of the verrucose disc of the lip, the lips of the two taxa are similar.

Zootrophion leonii D.E. Bennett & Christenson, Icones Orch. Peruv. pl. 800, 2001.

Ety.: Named for Marco León M., who collected this species.

Plant small, lithophytic, caespitose; roots coarse. Ramicauls slender, erect, 2 cm long, enclosed by 3 loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, petiolate, subacute, 3-3.5 cm long, 1.5 cm wide, cuneate below into a petiole ca. 0.5 mm long. **Inflorescence** a single flower, borne by a slender peduncle ca. 1 cm long, from near the apex of the ramicaul; floral bract oblique, loose, 7 mm long, 3 mm wide; pedicel 9 mm long, the filament with an aborted bud; ovary ca. 4 mm long, with serrated crests; **flower** obovoid, appearing to be non-resupinate; **sepals** dull yellow, intensely spotted and suffused with dark purple, glabrous externally, erose-carinate within along veins and margins, the dorsal sepal ovoid, concave, acute, 20 mm long, 10 mm wide, connate to the synsepal toward the apex and toward the base, creating lateral apertures into the interior of the flower, the lateral sepals completely connate into a concave, an obovoid, concave, obtuse synsepal, 18 mm long, 10 mm wide unexpanded; **petals** red-purple, elliptical, oblique, acute, acuminate, 9 mm long, 3 mm wide; **lip** pale red-purple, spathulate-trilobed, unguiculate, 5.5 mm long, 1.5 mm wide, the apex white centrally, suborbicular with the margin erose-denticulate, the lateral lobes low, below the middle with tips acute, retrorse, the disc shallowly channeled between a longitudinal pair of calli, terminating in a callus above the claw, the claw truncate, hinged to the column-foot; **column** pale yellow, semiterete, 4.5 mm long, dentate at the apex, the foot thick.

PERU: **Huancavelica**: Tajacaya, Dist. of Huachocolpa, above Lucuma, alt. 2300 m, 19 Feb. 1999, *M. León M. et al. 3019 ex Bennett 7878* (Holotype: Herb. Bennettianum).

This species from a remote area in central Peru is characterized by a small habit in keeping with the genus. The flower appears to be non-resupinate and solitary with an aborted bud on the filament. The lateral windows appear to be long, the dimensions and connate portions of sepals above and below are unknown. Within, the veins of the sepals are lamellate and erose-denticulate. The petals are elliptical and acuminate. The apex of the spathulate lip is broadly rounded and similarly erose-denticulate.

No material has been seen. The above description was made from the description and illustration published in *Icones Orchidacearum Peruviarum*.

Zootrophion niveum Luer & Hirtz, sp. nov.

Ety.: From the Latin *niveum*, "snow white," referring to the flowers.

Species haec *Z. oblongofolio* (Rolfe) Luer affinis, sed flore niveo, sepalis lateralibus crassis altissime alatis, sepalo dorsali non connato differt.

Plant large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 9-11 cm long, enclosed by 5-6 inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, petiolate, acute, 11-13 cm long including the petiole 1-1.5 cm long, 3-3.5 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower borne by a peduncle ca. 1 cm long, from near the apex of the ramicaul with an annulus; floral bract tubular, acute, 5 mm long; pedicel 8-11 mm long, with an aborted? bud; ovary 4 mm long, 3 mm thick, not fissured; **sepals** pure white, glabrous, forming a pendent, triquetrous flower, the dorsal sepal narrowly ovate, concave, acute, 17 mm long, 5 mm wide expanded, free from the synsepal to which it is appressed, the lateral sepals thickly fleshy, tall-carinate, 19 mm long, 8 mm wide unexpanded, connate to within 1 mm of the apex into an acute, dorsally compressed, ovate synsepal with a small, narrow cavity, ca. 13 mm long, 4 mm wide; **petals** translucent white, subquadrate, truncate, shortly apiculate, 4 mm long, 2.5 mm wide; **lip** white, oblong-sagittate, 3-lobed, 5 mm long, 1.5 mm wide, the apical half ovate, acute, obtuse, minutely serrated, minutely verrucose, the margins of the middle third erect with longitudinal, intramural calli that terminate with retrorse, narrowly obtuse, lateral lobes, the disc channeled, with an erect, conical callus above the base, the base subtruncate, bilobulate, hinged to the column-foot; **column** white, stout, semiterete, 3 mm long, denticulate at the apex, the foot 2 mm long.

ECUADOR: **Morona-Santiago**: Cordillera del Cutucú, Macuma, alt. 900 m, collected and cultivated by Augustín Zhiminaicala, 1 Mar. 2001, *C. Luer 19578* (Holotype: MO).

This species, collected in the Cordillera del Cutucú, is closely related to the widely distributed *Zootrophion oblongifolium*. Vegetatively similar, *Z. niveum* is distinguished by snow white flowers with thickly winged lateral sepals forming a dorsally compressed synsepal and a closely overlying dorsal sepal. The dorsal sepal is free from the synsepal its entire length. The cavity of the synsepal is narrow, being flanked by the broad surface of the lateral sepals and their tall wings. The petals, lip, and column vary insignificantly from those of *Z. oblongifolium*.

Zootrophion oblongifolium (Rolfe) Luer, Selbyana 7: 84, 1982.

Bas.: *Cryptophoranthus oblongifolius* Rolfe, Bull. Misc. Inform. 5, 1895.

Ety.: From the Latin *oblongifolius*, "with oblong leaves," referring to the leaves of the plant.

Plant medium to large, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-9 cm long, enclosed by 4-5 inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical-oblong, petiolate, acute to subacute, 6-10 cm long including the petiole 1 cm long, 2-3.5 cm wide, the base cuneate into the twisted petiole. **Inflorescence** a single flower borne by a peduncle ca. 1 cm long, or a loose, successively few-flowered, arching raceme, 4-7 cm long including a peduncle 3-4 cm long, from near the apex of the ramicaul with an annulus; floral bract oblique, acute, 5-6 mm long; pedicel 5-18 mm long; ovary deeply fissured, costate-lamellate, 6 mm long, 3 mm thick; **sepals** cream colored to dull white with thin, rose stripes, glabrous, sharply carinate, connate above and below a lateral aperture into a pendent, subcylindrical, box-like flower with an acute apex, the dorsal sepal elliptical, concave, arcuate, acute, 20-31 mm long, 7-12 mm wide unexpanded, connate to the synsepal for the apical half and the lower quarter, creating narrow, lateral apertures 3-5 mm long just below the middle, the lateral sepals completely connate into a concave, acute, 3-sided synsepal, 24-31 mm long, 9-10 mm wide unexpanded, lightly verrucose within, narrowly channelled at the base; **petals** translucent, with a purple midvein, subquadrate, truncate, shortly apiculate, 3.5-4 mm long, 3-3.5 mm wide; **lip** white, suffused with rose, oblong-sagittate, 3-lobed, 4.5-6 mm long, 1.5-2 mm wide, the apical half ovate, obtuse, minutely verrucose, the margins of the middle third erect with longitudinal, intramural calli that terminate with retrorse, rounded lateral lobes, the disc channeled, with an erect, conical callus above the base, the base subtruncate, hinged to the column-foot; **column** white, stout, semiterete, 2.5-4 mm long, bidentate at the apex, the foot thick.

COLOMBIA: Andes of South America, without better locality, collected by J. Charlesworth of Heaton, Bradford, presented to Kew in Aug. 1889, *J. Charlesworth s.n.* (Holotype: K; Isotype: BR); Without collection data, flowered in cultivation at Glasnevin, Nov. 1894, by *F.W. Moore s.n.* (Paratype: K).
ECUADOR: from Fred Fuchs, without locality, flowered in cultivation at J & L Orchids, Easton, CT, 19 Nov. 1977, *C. Luer 2228* (SEL). **Carchi**: Chical, alt. 1500 m, cultivated by Ecuagenera, Gualecao, 11 July 2002, *A. Hirtz 8402* (MO). **Napo**: between Papallacta and Baeza, alt. 1900 m, 20 Feb. 1982, *C. Luer & A. Hirtz 6859* (SEL). **Zamora-Chinchipe**: upriver from Valladolid, alt. 1950 m, 21 Apr. 1986, *D. D'Alessandro 609* (MO).
PERU: **Amazonas**: collected by B. Würstle, flowered in cultivation in Spielberg, Germany, 23 Sept. 1985, *C. Luer 11408* (MO). **Pasco**: Yaupi. near Oxapampa, collected July 2000 by Patrick & Martine Cloes, cultivated in Hasselt, Belgium, 8 Aug. 2001, *C. Luer 20009* (MO).

A living collection of this species was received by Kew Gardens from J. Charlesworth in 1889. In 1894, a specimen was sent for identification by F.W. Moore from Glasniven, Ireland. It occurs uncommonly in the Andes from Colombia into Peru. Vegetatively similar to many other members of the genus, it is easily recognized by the pendent, red-striped, elongated flower. Some clones produce only single flowers by peduncles about one centimeter long, while other populations produce identical flowers in a loose, successively flowered, drooping raceme. The sepals are thinly striped in red-purple on white, pale yellow, or pale rose. The carinae along the midveins are smooth but sharp. The narrow windows are barely below the middle. The petals are subquadrate and shortly apiculate. The lobes of the lip are oblong and rounded, the callus on the claw is smooth and pyramidal, and the column-foot is without calli.

Zootrophion trivalve (Luer & Escobar) Luer, Selbyana 7: 84, 1982.

Bas.: *Cryptophoranthus trivalvis* Luer & Escobar, Orquideología 14: 118, 1981.

Ety.: From the Latin *trivalvis* "with three valves," referring to the appearance of the sepals.

Plant medium in size, epiphytic, caespitose; roots coarse. Ramicauls slender, erect, 4-9.5 cm long, enclosed by 4-7 loose, inflated, tubular sheaths with more or less revolute margins. **Leaf** erect, coriaceous, more or less suffused with purple beneath, elliptical, petiolate, subacute, 4.5-10 cm long including the petiole 1-1.5 cm long, 2-4.2 cm wide, the rounded or cuneate base contracted into the petiole. **Inflorescence** a single flower produced successively, borne by a peduncle 8-8 mm long, from near the apex of the ramicaul with an annulus; floral bract tubular, 5 mm long; pedicel 5 mm long; ovary 5 mm long, with subverrucose costae; **sepals** buff, spotted diffusely with purple, yellow-orange within and on the

margins, thick, glabrous, smooth, ecarinate, connate above and below a lateral aperture into an ovoid flower, with the obtuse apex trifid, the dorsal sepal elliptical, concave, arcuate, subacute, 22 mm long, 4 mm wide unexpanded, connate to the synsepal apically for 14 mm and basally for 5 mm, creating lateral apertures 3 mm long below the middle, the lateral sepals completely connate into a concave, obtuse, tubular synsepal, 22 mm long, 9 mm wide unexpanded, channeled within at the base; **petals** translucent white with red dashes on a yellow center, pentagonal, 5 mm long, 2 mm wide, the apex acute, both margins obtusely angled; **lip** yellow, marked with orange-brown, oblong, arcuate, 3-lobed, 5.5 mm long, 1.5 mm wide, the apical half ligulate, obtuse, minutely spiculate, the lateral lobes acute, retrorse, below the middle, the disc with a pair of longitudinal, intramural calli on the middle half, the basal portion with an erect, pointed, verrucose callus, the base bilobulate, hinged to the column-foot; **column** yellow, suffused with rose, semiterete, 3.5 mm long, bidentate at the apex, the foot thick with an obtusely angled pair of longitudinal calli.

COLOMBIA: Without locality, collected in 1975 by J. M. Serna, cultivated at La Ceja by M. & O. Robledo, *R. Escobar 1658* (Holotype: JAUM), flowered in cultivation 4 Oct. 1977, *C. Luer 1908* (SEL); flowered in cultivation at Colomborquídeas, Apr. 1988, *C. Luer 13100* (MO).

This rare species is known from only one collection from an unrecorded locality. Although vegetatively similar to many other species of the genus, *Z. trivalve* is readily recognized by smooth, purple-spotted flowers with the sepals rounded externally. Thick, orange borders of the incurved sides of the sepals meet to impart a trivalved appearance. The eye is small and below the middle. The petals are pentagonal and acute, and the anterior lobe of the sagittate lip is minutely spiculate, while the lateral lobes are narrowly triangular.

Zootrophion vasquezii Luer, sp. nov.

Ety.: Named for Roberto Vásquez Ch. of Santa Cruz, Bolivia, renouned author of Bolivian cacti and orchids.

Inter species generis *Zootrophionis* species haec habitu parvo, flore roseo glabro fenestra supra medium parva, labelli lobis lateralibus triangularibus subacutis disco non-verrucoso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 2.5-4 cm long, enclosed by 3 inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, petiolate, subacute to obtuse, 4-5.5 cm long including the petiole 0.5 cm long, 2-2.8 cm wide, the base cuneate into the petiole. **Inflorescence** a single flower produced successively, sometimes 2 simultaneously, borne by a peduncle 6-7 mm long, from near the apex of the ramicaul with an annulus; floral bract tubular, 4 mm long; pedicel 6-7 mm long; ovary 6-costate, 3-4 mm long; **sepals** pale rose, suffused with darker rose around the window and toward the base, yellowish inside, glabrous, connate above and below a lateral aperture into an obovoid, box-like flower with an acute apex, the dorsal sepal elliptical, concave, acute, 18 mm long, 5.5 mm wide expanded, connate to the synsepal apically for 3 mm and basally for 9 mm, creating narrow, lateral openings 5-6 mm long just above the middle, the lateral sepals completely connate into a concave, subacute, 3-sided synsepal, 15 mm long, 8 mm wide expanded, slightly convex within; **petals** translucent white, suffused with rose, oblong, truncate, lightly acuminate, 3 mm long, 2.25 mm wide; **lip** dark purple, oblong-sagittate, 3-lobed, 4 mm long, 1 mm wide, the apical third acute, minutely verrucose-denticulate, the margins of the middle third erect with longitudinal, intramural calli on the margins of triangular, subacute, lateral lobes, the disc thickened and smooth above the base, the base bilobulate, hinged to the column-foot; **column** white, suffused with rose, stout, semiterete, 3 mm long, the foot thick, 2 mm long.

BOLIVIA: **Santa Cruz**: without locality, collected by Janet Kuhn, flowered in cultivation at J. & L. Orchids, Easton, CT, 16 Nov. 1977, *C. Luer 2205* (Holotype: SEL).

This species is known from only the original collection from the region around Santa Cruz, Bolivia. Another collection from Peru may prove to be this species. From the other members of *Zootrophion*, this species is distinguished by a small habit and medium-sized, pale rose, glabrous flowers with narrow eyes above the middle. The lateral lobes of the lip are broadly triangular, and the callus at the base of the lip is smooth, low and rounded.

Zootrophion vultur iceps (Luer) Luer, Selbyana 7: 84, 1982.

Bas.: *Cryptophoranthus vultur iceps* Luer, Selbyana 5: 146, 1979.

Ety.: From the Latin *vultur iceps*, "vulture-headed," in allusion to the appearance of the flower.

Plant medium in size to large, epiphytic, caespitose; roots slender. Ramicauls stout to slender, erect, 5-7.5 cm long, enclosed by 4-5 inflated, loose, tubular sheaths. **Leaf** erect, coriaceous, elliptical, acute, petiolate, 7-12 cm long including the petiole 1-2 cm long, 2-3 cm wide, the base cuneate into the petiole. **Inflorescence** a fascicle of single, successive flowers, borne by peduncles 12-15 mm long, from near the apex of the ramicaul with an annulus; floral bract tubular, 5-8 mm long; pedicel 7-8 mm long; ovary 6-winged, 3 mm long, 2.5 mm broad; **sepals** snow white, glabrous, connate above and below a lateral aperture into an arcuate-obovoid flower, the dorsal sepal linear, arcuate, concave, acute, 33 mm long, 5 mm wide expanded, connate to the synsepal apically for 7 mm and basally for 10-12 mm, creating narrow lateral apertures 3 mm long above the middle, the lateral sepals completely connate into an elliptical, 3-sided synsepal, 20 mm long, 7 mm wide unexpanded, the back surface convex and rugose, the apex acute, decurved, with a triangular cavity at the base to accommodate the lip; **petals** translucent yellow-white, oblong-obovate, subacute, lightly acuminate, 4.5 mm long, 2 mm wide; **lip** yellow-white, oblong-sagittate, 3-lobed, 4.5 mm long, 1 mm wide, the apical third narrowly acute, the margins of the middle third erect with longitudinal, intramural calli that terminate with retrorse, narrowly rounded, lateral lobes, the disc with a low, smooth callus above the base, the base hinged to the column-foot; **column** yellow-white, stout, semiterete, 3 mm long, bidentate, the anther, rostellum and stigma ventral, the foot thick, concave between parallel calli.

COSTA RICA: without locality, collected by Janet Kuhn in 1972, flowered in cultivation at J & L Orchids, Easton, CT, 11 Nov. 1977, *C. Luer 2164* (Holotype: SEL). **Cartago**: Taubaca, alt. 1700 m, Nov. 1938, *M. Valerio 2697* (AMES); vicinity of Carillo, alt. 1,000 ft., cultivated by Lankester at Las Concavas, *P.H. Allen 3853* (SEL); cultivated by *C. Lankester 1782* (SEL); La Palma, alt. 1400-1550 m, collected by C. Horich, flowered in cultivation at the University of California Botanical Garden, Berkeley, 29 Oct. 1959, *J. Blydenstein s.n.* (AMES).

This species is endemic in Costa Rica where it is occasionally encountered. It is easily distinguished by the large habit with narrowly elliptical leaves about as long as the ramicauls. The successive, solitary, snow white flowers resemble the bald head of a vulture complete with beady eyes and hooked beak. The lip is sagittate with a low, smooth callus above the base. The column-foot is longitudinally concave between parallel calli.

Zootrophion williamsii Luer, Selbyana 23: 41, 2002.

Ety.: Named for Norris H. Williams who collected this species in Panama.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls stout, erect, 3-5.5 cm long, enclosed by 4 large, loose, inflated, tubular sheaths with oblique ostia. **Leaf** erect, coriaceous, suffused with purple beneath, broadly elliptical, obtuse to rounded at the apex, 4-6 cm long, 3-4 cm wide, the base rounded, contracted into a petiole 8-13 mm long. **Inflorescence** single-flowered, 1-3 simultaneous flowers; peduncle 1.5-2 mm long, from near the apex of the ramicaul; floral bract oblique, inflated, 6-7 mm long; pedicel 3 mm long; ovary carinate-costate,with the ribs erose and irregular, 3-4 mm long, 3 mm wide; **sepals** dark purple, smooth, thickly fleshy, rigid, connate above and below a lateral aperture into an ellipsoid-obovoid, slightly arcuate tube, with the apex obtuse, the dorsal sepal elliptical, concave, acute, 20 mm long, 5 mm wide, 5-veined, connate to the synsepal apically for 2-3 mm, and basally for 10 mm, creating narrow, lateral windows above the middle 6-7 mm long, the lateral sepals completely connate into a concave, 3-sided synsepal, 15 mm long, 8 mm wide unexpanded, with a shallow, triangular cavity at the base to accommodate the lip; **petals** translucent, suffused with purple, oblong-subquadrate, broadly obtuse, bidentate at the apex, 3.5 mm long, 2.5 mm wide; **lip** dark red-purple, oblong-sagittate, 3-lobed, 4 mm long, 1.5-2 mm wide, the apex acute, microscopically denticulate-erose, the margins of the middle third with intramural calli produced into erect, retrorse, narrowly oblong lobes with rounded tips, the disc shallowly concave between the calli on the middle third, the disc below the middle thick, subpyramidal, minutely verrucose, the base truncate with small, obscure lobules at the corners, hinged to the column-foot; **column** red, stout, semiterete, 2.5 mm long, bidentate at the apex, the anther, rostellum and stigma ventral, the foot thick, channeled between a pair of rounded calli near the middle of the column-foot.

PANAMA: **Panama**: Cerro Campana, collected by N.H. Williams, 20 Mar. 1976, flowered in cultivation 30 May 1976, *C. Luer 0676* (Holotype: SEL); Cerro Campana, alt. 2,600-2,800 m, 4 June 1967, *W.H. Lewis et al. 1933* (MO); Cerro Campana, alt. 850 m, 11 Mar. 1973, *R.L. Liesner 595* (MO).
COSTA RICA: **Alajuela**: La Palma, alt. 1400-1550 m, flowered in cultivation at JEPS, 29 Oct. 1959, *C. Horich s.n.* (AMES, JEPS). **Limón**: Atlantic rain forest, canyon of Río de la Hondura between La Laguna and Veintesiete, alt. 600-700 m, flowered in cultivation at JEPS, 12 Feb. 1960, *C. Horich s.n.* (AMES, JEPS).

This Mesoamerican species, similar to *Z. atropurpureum* from the Greater Antilles and southern Brazil, was the subject of the painting by Rafael Lucas Rodríguez that was identified as *Z. atropurpureum* in *Géneros de Orquídeas de Costa Rica*. In the *Field Guide to the Orchids of Costa Rica and Panama* by Dressler, it was also identified as *Z. atropurpureum*. From the latter *Z. williamsii* differs with broadly elliptical, abruptly petiolate leaves, and a few shortly petiolate flowers borne simultaneously. In both species the sepals are smooth and deep purple. The ellipsoid flowers of *Z. williamsii* are somewhat broader and obtuse with larger windows. The flowers of *Z. atropurpureum* are obovoid, more slender, and with the apex acute. The windows are above the middle in both species. The petals, lip and column of the two species do not vary significantly.

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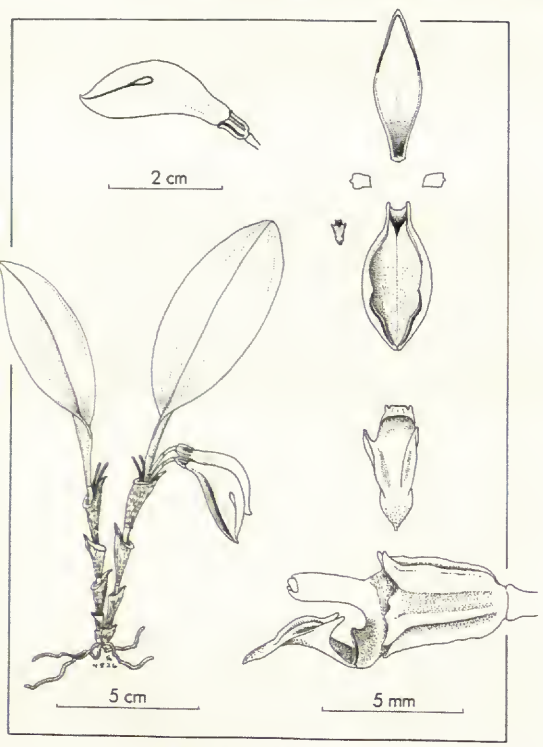


Fig. 1. Zootrophion alvaroi

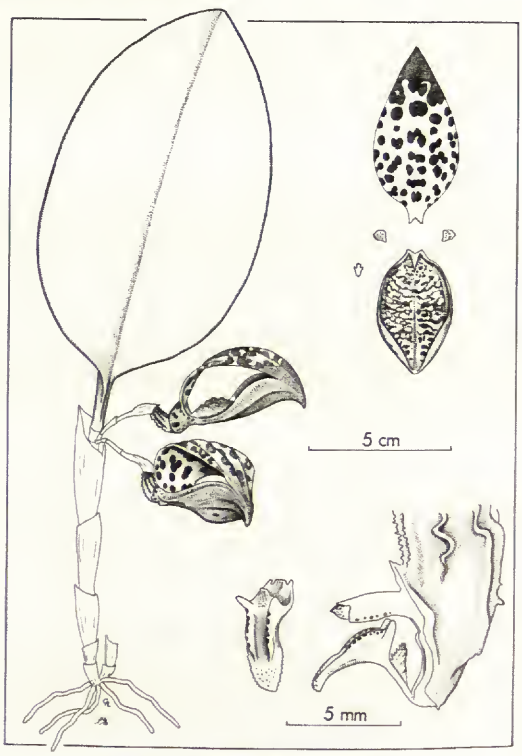


Fig. 2. Zootrophion argus

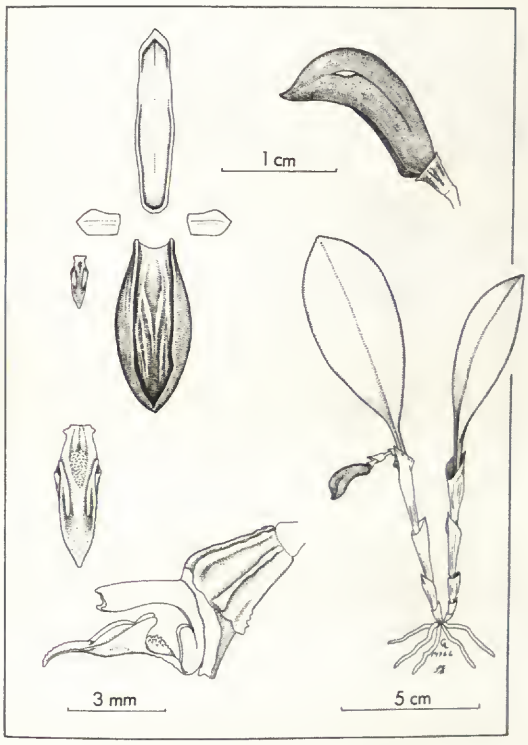


Fig. 3. Zootrophion atropurpureum

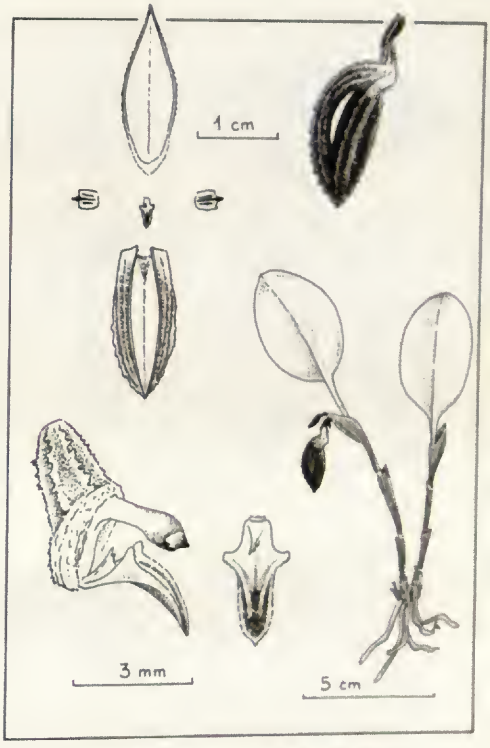


Fig. 4. Zootrophion beloglottis

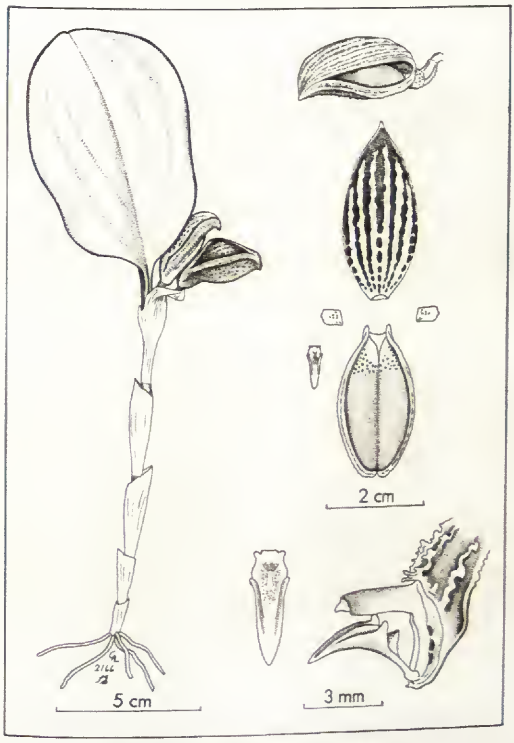


Fig. 5. Zootrophion dayanum

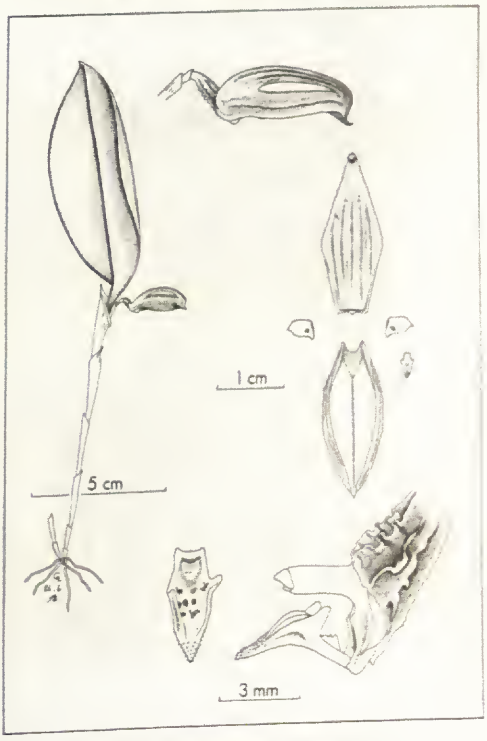


Fig. 6. Zootrophion dayanum

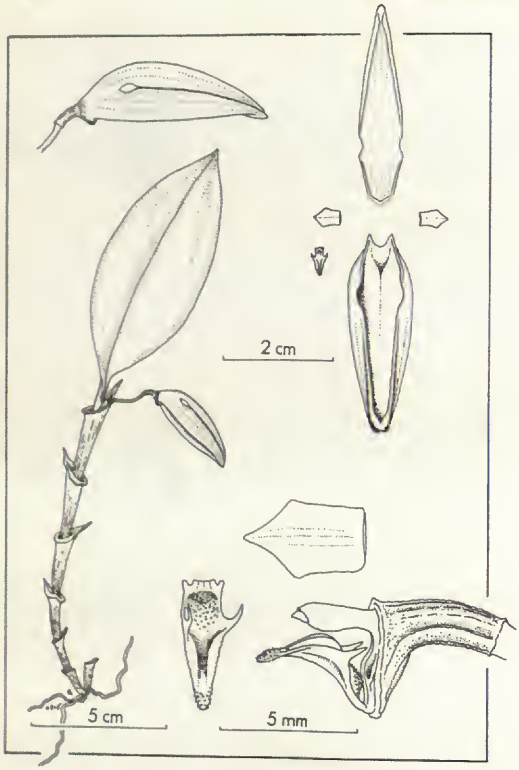


Fig. 7. Zootrophion dodsonii

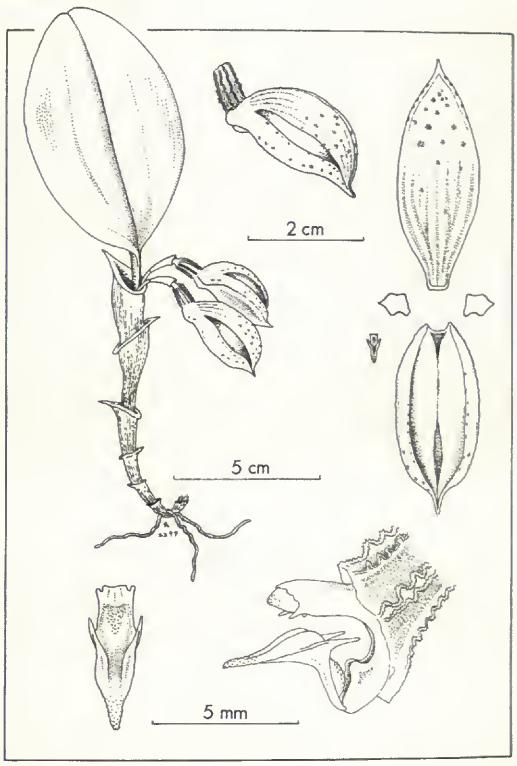


Fig. 8. Zootrophion endresianum

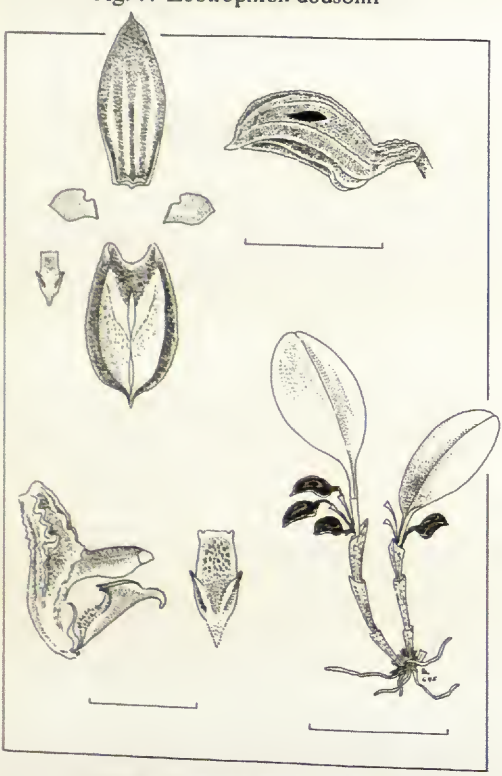


Fig. 9. Zootrophion gracilentum

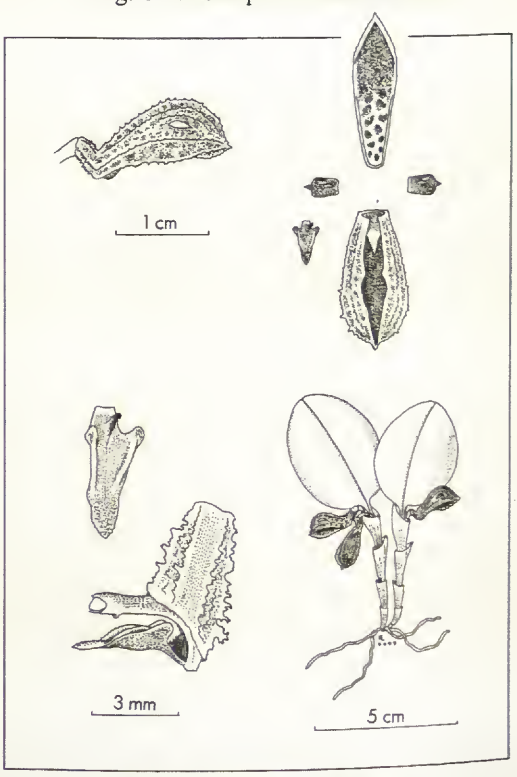


Fig. 10. Zootrophion griffin

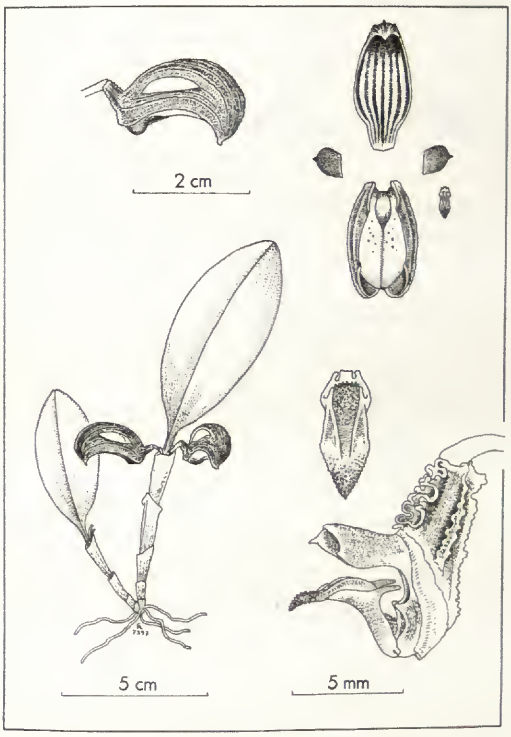


Fig. 11. Zootrophion hypodiscus

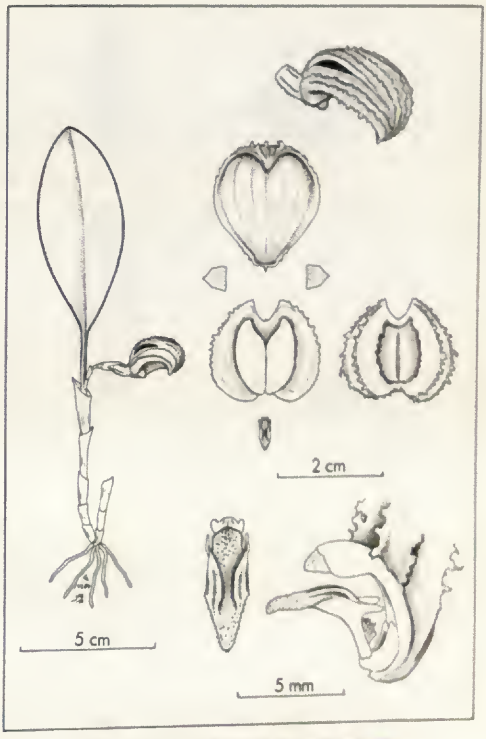


Fig. 12. Zootrophion lappaceum

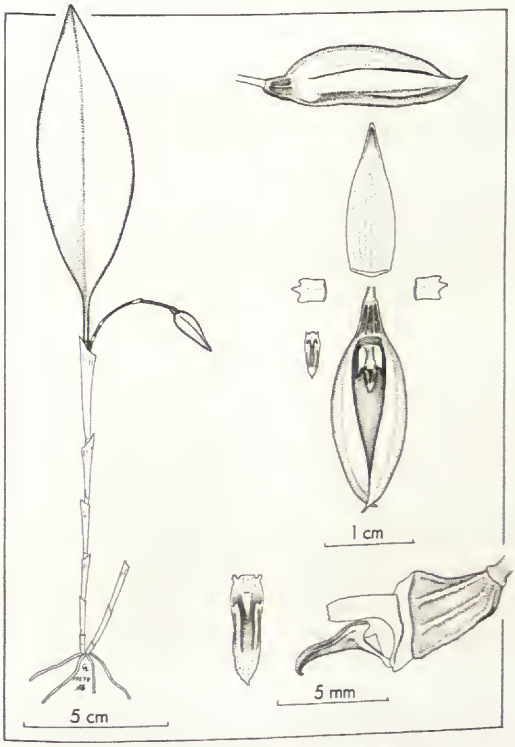


Fig. 13. Zootrophion niveum

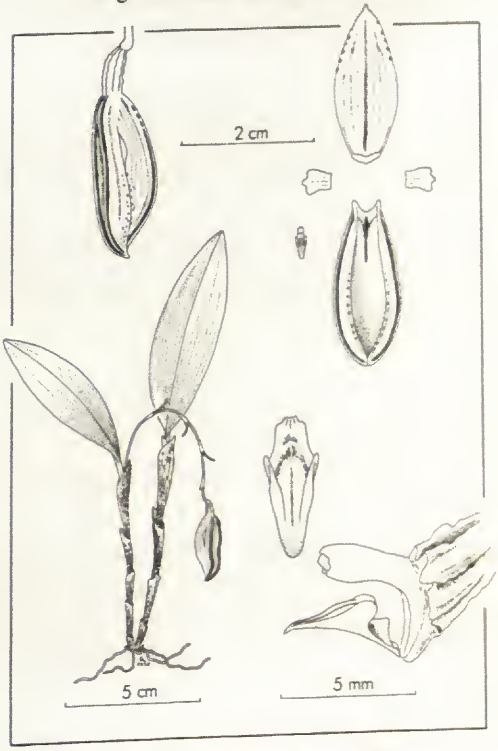


Fig. 14. Zootrophion oblongifolium

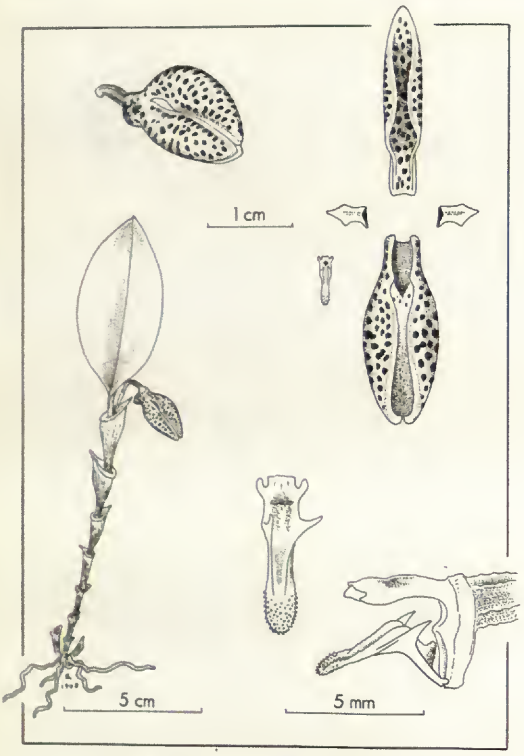


Fig. 15. Zootrophion trivalve

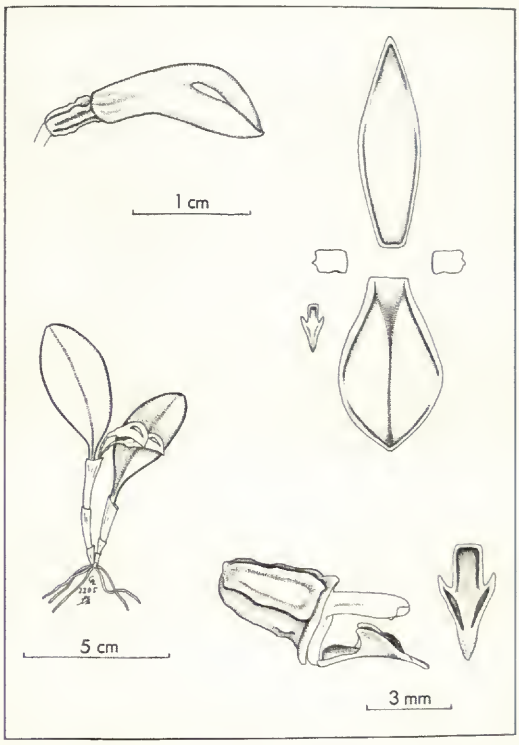


Fig. 16. Zootrophion vasquezii

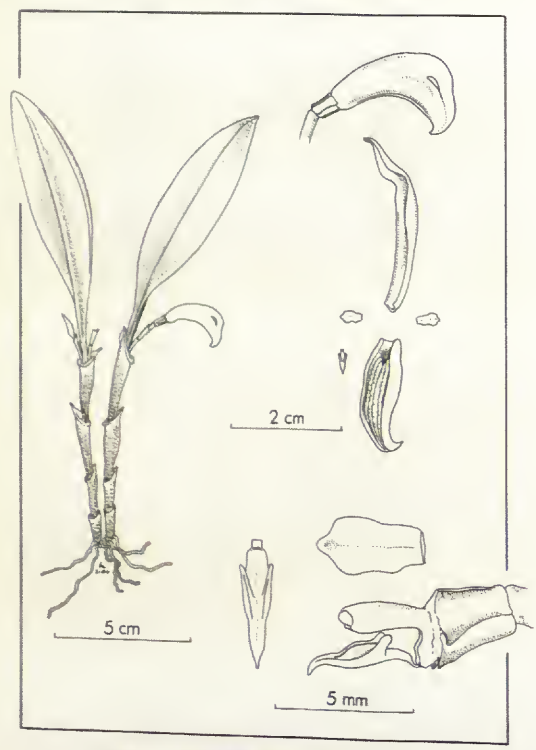


Fig. 17. Zootrophion vulturiceps

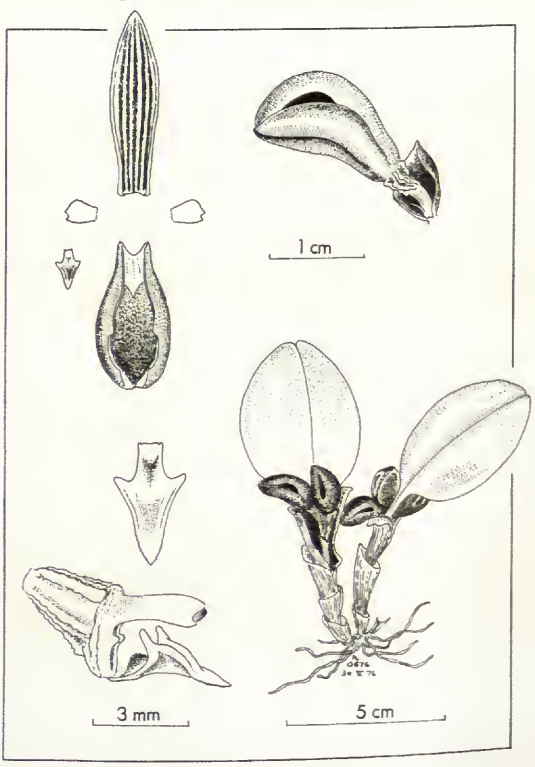


Fig. 18. Zootrophion williamsii

MISCELLANEOUS NEW SPECIES IN *BRACHIONIDIUM, DRACULA, LEPANTHES, OCTOMERIA, PLATYSTELE, PLEUROTHALLIS, PORROGLOSSUM*, AND *MASDEVALLIA*

The following new species are addenda to genera already revised in previous numbers of *Icones Pleurothallidinarum*, as well as future genera. The species of *Masdevallia* are printed in larger format to conform with *Systematics of Masdevallia*. The pages may be removed and added to their respective volumes. The pages are numbered to indicate places for insertion, *i.e.*, 795a. to *precede* 795.

New species:

Brachionidium portillae Luer & Hirtz, sp. nov.
Dracula maduroi Luer, sp. nov.
Dracula mendozae Luer & V.N.M.Rao, sp. nov.
Lepanthes rigidigitata Luer & Hirtz, sp. nov.
Octomeria portillae Luer & Hirtz, sp. nov.
Platystele gaileana Luer & Endara, sp. nov.
Pleurothallis erectiflora Luer & Hirtz, sp. nov.
Pleurothallis feuilletii Luer, sp. nov.
Pleurothallis jimii Luer, sp. nov.
Pleurothallis tiarata Luer & Hirtz, sp. nov.
Pleurothallis ximenae Luer & Hirtz, sp. nov.
Porroglossum lorenae Luer, sp. nov.

Masdevallia aptera Luer & L.O'Shaughn., sp. nov.
Masdevallia leathersii Luer, sp. nov.
Masdevallia lynniana Luer, sp. nov.
Masdevallia ostaurina Luer & V.N.M.Rao, sp. nov.
Masdevallia proboscoidea Luer & V.N.M.Rao, sp. nov.

Brachionidium portillae Luer & Hirtz, sp. nov.

Ety.: Named for José Portilla of Gualaceo, Ecuador, in whose collection this species is cultivated.

Inter species generis *Brachionidii* habitus repens perparvus, vaginis longiapiculatis, sepalis petalisque longiacuminatis, labello triangulari cum callo centrali distinguitur.

Plant very small, epiphytic, repent, the rhizomes slender, branching, 5-8 mm long between ramicauls, with 3 closely fitting, long-apiculate sheaths; roots comparatively coarse, produced singly from nodes on the rhizome. Ramicauls suberect, 1 mm long, enclosed by 2 tubular, long-apiculate sheaths. **Leaf** suberect to prostrate, coriaceous, broadly elliptical to suborbicular, 5-8 mm long, 4-6 mm wide, 1-veined, the rounded apex notched with a long apiculum in the sinus, the rounded base contracted into a petiole less than 1 mm long. **Inflorescence** a solitary, resupinate flower borne by an erect, slender peduncle 10-11 mm long, with a bract near the middle; floral bract infundibular, long-apiculate, 3 mm long, enclosing pedicel and ovary; pedicel thick, 0.25 mm long, with a protruding, capillary filament 1.5 mm long; ovary 0.75 mm long; **sepals** dark purple, membranous, the dorsal sepal ciliate, ovate, acute, long-acuminate, 7.5 mm long, 2 mm wide near the base, barely 3-veined, the lateral sepals eciliate, connate into a narrowly triangular, shortly bifid, acute, acuminate synsepal, 6 mm long, 2 mm wide at the base, 2-veined; **petals** ciliate, ovate, oblique, acute, long-acuminate, 7.5 mm long, 2 mm wide near the base, 1-veined; **lip** thick, triangular, acute, 1.25 mm long, 1.25 mm wide, with obtuse basal angles, concave with thickened margins, the disc concave but filled with a central, ovoid, pubescent callus, the broad base hinged to the base of the column-foot; **column** stout, 0.5 mm long, bidentate; pollinia unknown.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, between Romerillos and San Luis, alt. 1300 m, cultivated at Ecuagenera, Gualaceo, 11 July 2002, *A. Hirtz 8387* (Holotype: MO), C. Luer illustr. 20200.

This small species is apparently endemic in the humid forests of the Cordillera del Condor. It is characterized by a long, creeping, branching rhizome that bears broadly elliptical, long-apiculate leaves. Sheaths of the rhizome, peduncle, and floral bracts are similarly long-apiculate. The sepals and petals are ovate and long-acuminate. The lip is triangular with a thick, ovoid callus filling the concave disc.

Dracula maduroi Luer, sp. nov.

Ety.: Named for Andres Maduro of Finca Dracula in the province of Chiriquí, Panama.

Species haec *D. posadarum* Luer & R.Escobar affinis, sed floribus albis, sepalorum caudis multilongioribus et labelli carinae tres bene effectis differt.

Plant medium in size, epiphytic, densely caespitose; roots slender. Ramicauls stout, erect, 2-4 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thinly coriaceous, carinate, narrowly linear-obovate, acute, 10-20 cm long, 1-1.5 cm wide, gradually narrowed below into the conduplicate base. **Inflorescence** a distantly and successively few-flowered raceme, borne by a sparsely bracted, more or less horizontal peduncle up to 20 cm long, from low on the ramicaul; floral bract, tubular, 7-10 mm long; pedicel 11-15 mm long; ovary 5 mm long, round in cross section; **sepals** white, sometimes slightly suffused with rose at the base, densely pubescent within, the dorsal sepal broadly ovate, obtuse, 9 mm long, 11 mm wide, connate to the lateral sepals for 4 mm to form an expanded flower, the apex obtuse, contracted into a slender, filamentous, yellow or purple tail 4-6 cm long, the lateral sepals 12 mm long, connate 9 mm to form a broad synsepal 18 mm wide, shallowly concave below the lip, the apices obtuse, contracted into slender tails similar to that of the dorsal sepal; **petals** cream colored, cartilaginous, oblong, 3 mm long, 1.5 mm wide, the apex obtuse, papillose, indistinctly bivalvate, the margin obtuse, denticulate, the outer lamina rounded, denticulate; **lip** white, spathulate, 5 mm long, 2.6 mm wide, the epichile ovoid, 2.5 mm long, 2.6 mm wide, concave with slightly incurved margins, with 3 parallel, well-developed lamellae within, flanked by a few, vestigial, radiating carinae, the hypochile oblong, 2.5 mm long, 2.4 mm wide, with erect, obtuse, marginal angles, cleft centrally, the base concave, hinged to the column-foot; **column** white, stout, semiterete, bifurcate at the apex, 3.5 mm long, with a stout foot 3 mm long.

PANAMA: **Bocas del Toro**: Velorio area, alt. 1100-1500 m, 10 Aug. 2003, *A. Maduro & E. Olmos 410* (Holotype: MO), C. Luer illustr. 20534.

This small-flowered species is morphologically similar to the Colombian *D. posadarum*, but differs in the all-white, densely pubescent sepals with twice longer tails, and with the three lamellae of the epichile of the lip well-developed.

Dracula mendozae Luer & V.N.M. Rao, sp. nov.

Ety.: Named for the late Hartman Mendoza, co-collector of this species.

Inter species *Draculae* planta mediocris, foliis anguste linearibus, floribus mediocris, sepalis concavis intus dense atropunctatis minute papillosis, labello roseo epichilio concavo multicostatis quam hypochilio duplomajore distinguitur.

Plant medium in size, epiphytic, densely caespitose; roots fleshy. Ramicauls stout, erect, 2.5-3.5 cm long, enclosed by 2-3 loose, tubular sheaths. **Leaf** erect, thinly coriaceous, carinate, conduplicate, narrowly linear, acute, 15-17 cm long, 1.5 cm wide, gradually narrowed below into the conduplicate base. **Inflorescence** a congested, few-flowered raceme, borne by a sparsely bracted, horizontal to descending peduncle 10-30 cm long, from low on the ramicaul; floral bract, tubular, 10-11 mm long; pedicel 13-14 mm long; ovary 4 mm long, smooth, round in cross section; **sepals** cream colored, suffused with brown externally, diffusely papillose-pubescent within with dark purple-brown dots, the dorsal sepal suborbicular, 18 mm long, 20 mm wide, concave, the apex rounded, abruptly contracted into a slender, brown tail 4 cm long, connate to the lateral sepals 5-6 mm to form a gaping cup, the lateral sepals broadly ovate, oblique, obtuse, 18 mm long, connate 15 mm into an expanded synsepal 32 mm wide, the apices contracted into similar tails 5 cm long; **petals** purple-black, cartilaginous, oblong, 3 mm long, 2 mm wide, the apex bivalvate, papillose between the laminae, the inner lamina obtuse, denticulate, the outer lamina rounded, recurved; **lip** pale rose marked with dark rose on margins of carinae, spathulate, 11 mm long, 7 mm wide, the epichile ovoid, 8 mm long, 7 mm wide, concave with slightly incurved, denticulate margins, with 3 primary lamellae and 5-7 more or less incomplete, radiating, lamellae within, the hypochile oblong, 4 mm long, 4.5 mm wide, with erect, obtuse, marginal angles, cleft centrally, the base concave, hinged to the column-foot; **column** yellow-white, stout, semiterete, 4 mm long, with a stout foot 3 mm long.

ECUADOR: **Zamora-Chinchipe**: without locality, collected by Dennis D'Alessandro and Hartman Mendoza, flowered in cultivation in Wilmington, DE, Feb. 2003, by *V.N.M. Rao 130* (Holotype: MO), C. Luer illustr. 20534.

This species is most similar to the Colombian *D. pholeodytes* Luer & Escobar. The interior of the sepals is papular-pubescent and diffusely dotted with dark brown instead of being nearly solid purple-black. The lip is twice as large with three primary carinae and 4-5 radiating carinae from the margin.

Lepanthes rigidigitata Luer & Hirtz, sp. nov.

Ety.: From the Latin *rigididigitatus*, "with a rigid digit," referring to the erect column.

Planta parva, racemo flexuoso laxo folio elliptico multilongiore, sepalis triangularibus aequalibus expansis, petalis labelloque minutis late ovatis, columna erecta maxima.

Plant small, epiphytic, scandent; roots slender. Ramicauls stout, erect, proliferating other ramicauls, 15-20 cm long, enclosed by 4-6 ribbed, lepanthiform sheaths with thick, minutely ciliate margins. **Leaf** erect, coriaceous, 13-17 mm long including a petiole 1-2 mm long, the blade elliptical, subacute, 4-7 mm wide, cuneate below into the petiole. **Inflorescence** a lax, flexuous, successively many-flowered raceme, usually 1 flower open, to 12 cm long including a peduncle 1-2 cm long, borne from near the apex of a ramicaul; floral bracts 1 mm long, obtuse, sparsely echinate; pedicel 1 mm long; ovary sparsely echinate, 1 mm long; **sepals** carinate and sparsely tuberculate externally, expanded, pale yellow, glabrous, triangular, acute, the dorsal sepal 4 mm long, 1.9 mm wide, 3-veined, connate to the lateral sepals for 0.5 mm, the lateral sepals also 4 mm long, 1.9 mm wide, but 1-veined, connate 0.5 mm; **petals** pale yellow, transversely ovate-hastate, broadly obtuse, 0.5 mm long, 0.6 mm wide, 1-veined; **lip** pale yellow, transversely subquadrate with the sides broadly rounded and curved up, 0.7 mm long, 0.8 mm wide, the apex truncate with an obtuse apiculum, the base broadly transverse and adnate to the base of the column; **column** rose, terete, erect, 2.3 mm long, 0.6 mm thick, footless.

ECUADOR: **Morona-Santiago**: near Chigüinda, alt. 1500 m, cultivated at Ecuagenera, Gualaceo, 10 Nov. 2001, *A. Hirtz* (Holotype: MO), C. Luer illustr. 20218.

This species is characterized by expanded, triangular sepals, minute petals and lip, and a large, erect, cylindrical column. These characters are also seen in two Colombian species: *Lepanthes micellilabia* Luer & Escobar with a short, congested raceme, and *L. isosecles* Luer & Escobar with a long, pendent raceme. The long, lax raceme of *L. rigidigitata* is not pendent. It also differs from the latter by the prolific habit and transversely ovate petals and transversely quadrate lip.

Octomeria portillae Luer & Hirtz, sp. nov.

Ety.: Named for José Portilla, proprietor of Ecuagenera, Gualaceo, in whose collection this species was discovered.

Planta parva folia angustissima, inflorescentia fasciculata floribus parvis simultaneis, sepalis petalisque obtusis trinervis, et labello ovato bicarinato, lobis infra medium humilis rotundis distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4.5-5 cm long, with a series of 5 shredded, tubular sheaths. **Leaf** erect, coriaceous, narrowly elliptical, subacute, 4-4.5 cm long, 0.6 mm wide, narrowly cuneate below into the sessile base. **Inflorescence** a congested fascicle of several, simultaneous, yellow flowers; peduncle ca. 1 mm long, pedicels 2 mm long, floral bracts dry, imbricating, 2 mm long, borne from the base of the leaf; ovary 1.5 mm long; flowers yellow; **sepals** glabrous, membranous, elliptical, obtuse, the dorsal sepal free, 3.5 mm long, 1.6 mm wide, 3-veined, the lateral sepals oblique, held forward as if a synsepal, barely connate at the base, 4 mm long, 1.6 mm wide, 3-veined, connate 1 mm at the base; **petals** similar to the sepals, elliptical, obtuse, 3.25 mm long, 1.5 mm wide, incompletely 3-veined; **lip** ovate, subtrilobed, subtruncate at the apex, 2.5 mm long, 2 mm wide across lobes expanded, with low, rounded, erect marginal lobes below the middle, the disc shallowly concave between a pair of low carinae just below the middle, the base truncate, inflexibly attached to the column-foot; **column** semiterete, 1.5 mm long, the foot thick, 0.5 mm long, the anther apical, the rostellum and stigma ventral.

ECUADOR: **Zamora-Chinchipe**: Cordillera del Condor, Paquisha, alt. 1500 m, cultivated at Ecuagenera, Gualaceo, 10 Nov. 2001, *A. Hirtz 7894* (Holotype: MO), C. Luer illustr. 20226.

This little species from southeastern Ecuador is basically similar to a majority of the species of the genus, but is distinguished by a small habit and narrowly elliptical leaves. Small yellow flowers are borne simultaneously in a congested fascicle with short pedicels. The sepals are obtuse with the laterals held forward beneath the proportionately large, ovate lip with a pair of carina below the middle.

Platystele gaileana Luer & Endara, sp. nov.

Ety.: Named for Gail Furniss of Atlanta, GA, whose support of pleurothallid research has contributed to making this work possible.

Species haec *P. delhierroi* Luer & Hirtz affinis, sed sepalis longioribus, petalis minute ciliatis, et labello longiore angustioreque differt.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-8 mm long, enclosed by a thin, tubular sheath and another at the base. **Leaf** erect, coriaceous, elliptical-obovate, subacute to obtuse, 15-25 mm long including the petiole 5-8 mm long, the blade 5-7 mm wide, narrowed below into the petiole. **Inflorescence** a loose, distichous, flexuous, 6- to 8-flowered raceme, to 7 cm long including the peduncle ca. 3 cm long, with 1-2 flowers open simultaneously, borne laterally from the ramicaul; floral bracts acute, 1.5 mm long; pedicels 6-8 mm long; ovary 0.5 mm long; flowers purple, **sepals** glabrous with the margins microscopically ciliate, membranous, the dorsal sepal narrowly ovate, acute, long-acuminate, 11 mm long, 2 mm wide, 1-veined, the lateral sepals narrowly triangular, oblique, acute, long-acuminate, recurving near the middle, 11 mm long, 1.2 mm wide, 1-veined, connate 1 mm at the base; **petals** narrowly ovate-subsigmoid, acute, long-acuminate, minutely ciliate, 7.5 mm long, 1 mm wide, 1-veined; **lip** fleshy, ovate, acute, 4 mm long, 1.3 mm wide, 3-veined, with a low, ovoid callus at the base, the disc slightly convex, the base snugly attached to the column-foot; **column** short, hooded, 0.5 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Imbabura**: Reserva Biológica Los Cedros, sendero hacia el Cerro de La Plata, alt. 2445 m, 13 Mar. 2002, *L. Endara et al. 943* (Holotype: QCE; Isotype: MO), C. Luer illustr. 20216.

This beautiful little species, closely allied to *P. delhierroi*, is apparently endemic in a small, nearly inaccessible area of wet forest in northwestern Ecuador. Both species are characterized by a small caespitose habit commonly seen in the genus. The sepals and petals of both species are long-attenuate, with the petals of *P. gaileana being minutely ciliate. The floral parts of* P. delhierroi *are yellow-orange,* while the flowers of *P. gaileana* are an intense purple. The lips of the two species are similar, but the lip of the latter is longer and narrower.

Pleurothallis erectiflora Luer & Hirtz, sp. nov.

Ety.: From the Latin *erectiflorus*, "with erect flowers," referring to the raceme.

Inter species subgen. *Crocodeilanthe* planta grandis gracilis, spatha magna, racemo laxo disticho multifloro folio anguste elliptico multilongiore, floribus erectis parvis subglobosis, sepalis subacutis intus villosis, petalis magnis, et labelli lobis infra medium erectis distinguitur.

Plant mediun to large, epiphytic, caespitose; roots coarse. Ramicauls stout, erect, 15-17 cm long, with a long, loose, tubular sheath below the middle and another sheath at the base. **Leaf** erect, coriaceous, narrowly elliptical, obtuse, 10-12 cm long, 2-2.5 cm wide, the base cuneate, subsessile. **Inflorescence a single, distichous, loose, simultaneously many-flowered raceme, to 24 cm long including a** peduncle ca. 8 cm long, with a spathe 3-3.5 cm long at the base of the leaf; flowers erect, small; floral bract 2 mm long; pedicel 2 mm long; ovary 2 mm long; **sepals** similar, white with light yellow tips, glabrous externally, finely villous within, elliptical-ovate, subacute, concave, 4 mm long, 2 mm wide, 3-veined, connivent below the middle into a subglobose tube, the laterals connate basally for less than 1 mm; **petals** white, membranous, concave, broadly elliptical, broadly obtuse, 2.75 mm long, 1.75 mm wide; **lip** white with brown margin, thick, suboblong-trilobed, obtuse, 2 mm long, 1 mm wide, the lateral lobes erect, thick, below the middle, the disc convex above the middle, shallowly concave between lobes below the middle, the base with a small cavity, articulated with the tip of the column-foot; **column** stout, semiterete, 1 mm long, the anther and stigma subapical.

ECUADOR: **Zamora-Chinchipe**: "Zumba," cultivated by Ecuagenera, 5 July 2002, *A. Hirtz 8257* (Holotype: MO), C. Luer illustr. 20428.

This species of subgenus *Crocodeilanthe* is apparently endemic in southernmost Ecuador. In common with most of the other species, the ramicauls are stout with a large, loose, tubular sheath. The raceme, subtended by a conspicuous spathe, is loosely flowered and far exceeds the elliptical leaf. The flowers are small and held erect against the rachis. The sepals part above the middle to expose a villous inner surface, and connive below the middle into a subglobose tube; the petals are large and membranous; and the lobes of the lip are erect and below the middle.

Pleurothallis feuilletii Luer, sp. nov.

Ety.: Named for Christian Feuillet, at that time with ORSTUM, Cayenne, French Guayana.

Species haec *P. pictae* Lindl. affinis, sed habitu minore, sepalis incrassatis acutissimis distinguitur.

Plant very small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 2-3 mm long, enclosed by 1-2 thin, tubular sheaths. **Leaf** erect, coriaceous, suffused with purple, elliptical-obovate, subacute to obtuse, petiolate, 7-10 mm long including a petiole 1-2 mm long, 3 mm wide, the base cuneate into the petiole. **Inflorescence** a lax, distichous, more or less flexuous, simultaneously few-flowered raceme 2-2.5 cm long, borne by a slender peduncle ca. 1.5 cm long, with a minute bract below the apex of the ramicaul; floral bracts oblique, acute, 1-1.25 mm long; pedicels 2-2.5 mm long; ovary 1.3 mm long; **sepals** pale yellow, membranous, glabrous, carinate, thickened at the tip, slightly acuminate, sharply acute, the dorsal sepal oblong, 4.75 mm long, 2 mm wide, 3-veined, the lateral sepals connate to near the apex into an ovate, shallowly concave synsepal, 4.5 mm long, 2.5 mm wide expanded, 2-veined, forming a shallow mentum below the column-foot; **petals** membranous, glabrous, elliptical, acute, dilated on the lower margin above the middle, 1.2 mm long, 0.6 mm wide, 1-veined; **lip** oblong, rounded at the apex, 2.2 mm long, 1.8 mm wide, shallowly concave centrally between a pair of low, longitudinal calli, the base truncate, hinged to the tip of the column-foot; **column** broadly winged above the middle, 1.75 mm long, bidentate at the apex, the anther and stigma ventral, the foot 1 mm long with a pair of tuberosities or calli near the middle.

FRENCH GUYANA: Monte de Kaw, alt. ca. 100 m, *C. Feuillet 2906* (Holotype: CAY), C. Luer illustr. 18679.

This species is closely allied to the variable and frequent *P. grobyi*, but it is distinguished by the much smaller habit; a loose, two- to three-flowered raceme less than three centimeters long; and sepals that the thickened at slightly acuminate, sharply acute apices.

Pleurothallis jimii Luer, sp. nov.

Ety.: Named for James Hamilton of Petite Plaisance, Valley Ford, CA, who cultivates this species.

Species haec *P. viduatae* Luer affinis, sed habitu majore, sepalo dorsali synsepaloque obtusis, labello intricato bicarinato marginibus supra medium minute eroso-cristato differt.

Plant large for the subgenus, epiphytic, caespitose; roots slender. Ramicauls slender, erect, sharply ancipitous above the middle, to 27 cm long, 6 mm deep at the leaf, with a tubular sheath above the base and 2-3 sheaths at the base. **Leaf** rigid, coriaceous, erect, elliptical-ovate, acute, carinate externally, 12 cm long, 4.5 cm wide, the base cuneate, conduplicate, sessile, with the sides decurrent on the ramicaul for 1.5 cm. **Inflorescence** a fascicle of solitary, successive flowers borne from a reclining spathe ca. 5 m long, above the base of the leaf; peduncle slender, erect, 10 mm long; floral bract 7-8 mm long; pedicel 15 mm long; ovary 5 mm long; **sepals** fleshy, yellow, suffused with orange-brown within, glabrous, concave, the dorsal sepal ovate, obtuse, 11 mm long, 6 mm wide, the lateral sepals completely connate into an ovoid synsepal similar to the dorsal sepal, 11 mm long, 6 mm wide; **petals** fleshy, terete and yellow above the middle, purple below the middle, elliptical-ovate, oblique, acute, 8 mm long, 3 mm wide; **lip** purple, thick, subquadrangular, truncate-retuse, 2.5 mm long, 2.75 mm wide, the margins above the middle broadly rounded and minutely undulate-crested, the margins of a pair of carinae below the middle erect, subacute, minutely erose, the disc concave between them, the base subtruncate, broadly concave, hinged to the base of the bulbous column-foot, forming a ball-and-socket articulation; **column** yellow, stout, semiterete, 4 mm long, the anther and stigma subapical, the base of the column bulbous.

COLOMBIA: without collection data, obtained from Orquídea del Valle, Cali, Colombia, cultivated by James Hamilton at Petite Plaisance, Valley Ford, CA, 1 June 2002, *C. Luer 20136* (Holotype: MO).

The collection data of this Colombian species are unknown. It is most similar to the Ecuadorian *P. viduata* of subgenus *Ancipitia*, which also is without collection data. *Pleurothallis jimii* is characterized by the large habit, a sharply ancipitous ramicaul with decurrent margins of the base of the leaf. The flowers are fleshy with obtuse, ovoid, dorsal sepal and synsepal; the petals are large and thick with terete apices; and the lip is intricately sculpted with erose carinae and crested margins.

Pleurothallis tiarata Luer & Hirtz, sp. nov.

Ety.: From the Latin *tiaratus*, "with a truban," referring to the deeply concave, uppermost synsepal.

Inter species subsect. *Macrophyllae-Racemosae* habitu mediocris, foliis anguste cuneatis sessilibus, racemo paucifloro pendulo, flore nonresupinato, synsepalo subsphaerico, petalis oblongis brevibus, labello suborbiculato ad basim deflexo.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 4-13 cm long, with a tubular sheath near the middle and 2-3 others at the base. **Leaf** erect, coriaceous, narrowly elliptical, acute, 7-11 cm long, 1.2-1.6 cm wide, cuneate below into a sessile base. **Inflorescence** a loose, pendent, successively 2- to 3-flowered raceme, to 2.5 cm long, from a spathe 6-8 mm long at the base of the leaf; peduncle slender, arcuate, 10-15 mm long; floral bract 4 mm long; pedicels 4 mm long; ovary 3.5 mm long; **sepals** translucent light yellow, glabrous, membranous, the dorsal sepal ovate, obtuse, 12 mm long, 7 mm wide, 5-(7-)veined, the lateral sepals completely connate into a deeply concave, subglobose, obtuse synsepal, 10 mm long, 12 mm broad unexpanded, 10-(12)veined; **petals** yellow, glabrous, fleshy, oblong, acute, 5 mm long, 1.5 mm wide, 3-veined; **lip** green, broadly ovate to suborbicular, the apex broadly rounded, minutely apiculate, 2.5 mm long from the base to the apex, 3 mm wide, with obtuse, incurved, basal lobes flanking the column, the disc with a low, flat, obscure callus, the base acutely deflexed upon itself, inflexibly attached to the base of the column; **column** red-purple, stout, terete, 2 mm long, the foot obsolescent, the anther, rostellum and stigma apical.

ECUADOR: **Morona-Santiago**: collected near Pangui, alt. 1200 m, cultivated by Ecuagenera, Gualaceo, Ecuador, *A. Hirtz 8063* (Holotype: MO), C. Luer illustr. 20190.

This species is distinguished from other members of subsection *Macrophyllae-Racemosae* by narrowly elliptical, sessile leaves, and a short, arching, two- to three-flowered raceme. The deeply concave, suborbicular synsepal is uppermost, with short, oblong petals within the margins. The lip is suborbicular, apiculate, and acutely deflexed below the stout column.

Pleurothallis ximenae Luer & Hirtz, sp. nov.

Ety.: Named for Sra. Ximena de Hirtz, of Quito, Ecuador.

Species haec *P. cypripedioidi* Luer affinis, sed pedunculo subtiliter longipubescenti, pedicellis longiore et ovario longivilloso differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls slender, erect, 1-2 cm long, enclosed by 2 loose tubular sheaths and another at the base. **Leaf** erect, coriaceous, elliptical, subacute to obtuse, 3.5-5.5 cm long including a petiole 0.5-1 cm long, 1.5-2 cm wide, cuneate below into the petiole. **Inflorescence** a weak, flexible, pendent, lax, distichous, subflexuous, successively several- to many-flowered raceme, up to 25 cm long including the peduncle ca. 5 cm long, the rachis and peduncle finely long-pubescent, from a spathe ca. 3 mm long below the apex of the ramicaul; floral bracts glabrous, 3 mm long; pedicels glabrous, 3-4 mm long; ovary long-villous, 3 mm long; **sepals** light green, spotted with red-purple, long-ciliate-pubescent externally, densely long-villous-pubescent within near the margins, subcarinate, the dorsal sepal elliptical-obovate, concave, obtuse, slightly acuminate, 11 mm long, 6 mm wide unexpanded, 3-veined, the lateral sepals connate into a deeply concave, inflated, obovoid, obtuse synsepal, 12 mm long, 7 mm wide unexpanded, 6-veined; **petals** spathulate, shortly acuminate, with the sides broadly rounded, unguiculate, 2 mm long, 1.75 mm wide, 3-veined, with verrucose calli along the veins externally; **lip** green, subquadrate-trilobed, unguiculate, arcuate, truncate at the apex, the blade 2.5 mm long, 1.3 mm wide unexpanded, the sides erect, becoming erect, rounded lobes at the base, with longitudinal, marginal, intramural calli, the disc with purple verrucae toward the base, the claw slender, 1 mm long, hinged to the column-foot; **column** green, winged and serrate-fringed above the middle, long-denticulate at the apex, 5.5 mm long, the foot 2 mm long, the anther, rostellum and stigma ventral.

ECUADOR: **Morona-Santiago**: road from Limón to Río Zamora, along Río Yanguza, alt. 1200 m, 22 Oct. 1999, *A. Hirtz, E. Sánchez & S. Marin 7047* (Holotype: MO), C. Luer illustr. 20232.

This species is similar to *P. cypripedioides* of subgenus *Effusia*, and it grows in a region where the latter is relatively frequent. Both produce a long, loose, successively flowered raceme with flowers of similar size. However, the peduncle and rachis of *P. ximenae* are finely long-pubescent; the pedicels are shorter; the ovary is long-villous; the petals are three-crested; and the column-foot is pubescent.

Porroglossum lorenae Luer, sp. nov.

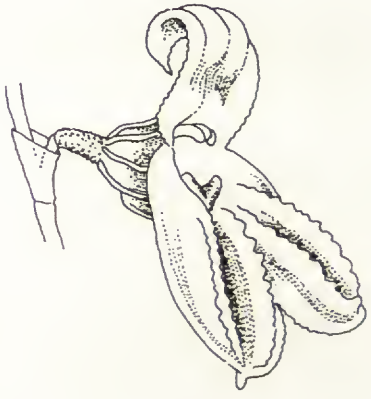
Ety.: Named for Lorena Endara of Quito, Ecuador, who discovered this species.

Species haec *P. eduardii* (Rchb.f.) Sweet affinis, sed sepalo dorsali longiore et non revoluto in tubum longiore connatis, et lateralibus unicarinatis differt.

Plant medium in size, epiphytic, long-repent, the rhizome slender, 1.5-3.5 cm long between ramicauls; roots slender. Ramicauls erect, slender, 3-5 mm long, enclosed by 2 tubular sheaths. **Leaf** erect, coriaceous, elliptical, obtuse, long-petiolate, 2.5-3.5 cm long including the petiole 1-1.5 cm long, the blade 0.8-1.1 cm wide, the base cuneate into the slender petiole. **Inflorescence** a distantly few-flowered raceme ca. 5 cm long, borne by a slender peduncle ca. 15 mm long, with a few short bracts, from the base of the ramicaul; floral bracts tubular, 2 mm long; pedicel 3 mm long; ovary verrucose, 4 mm long; **sepals** red, with erose margins, the dorsal sepal ovate, non-revolute, 15 mm long, 7 mm wide, 3-veined, connate to the lateral sepals for 6 mm to form a broad sepaline tube, the apex obtuse, with a minute apiculum, the lateral sepals with a large yellow central area, oblong, 15 mm long, 13 mm wide, 3-veined, connate 8 mm, the apices rounded with a minute apiculum, with a crested carina within either medial to, or lateral to the midvein; **petals** translucent orange, oblong-ovate, 4 mm long, 1 mm wide, 1-veined, the apex truncate, the lower margin slightly dilated above the base; **lip** orange, the blade cuneate, 4 mm long, 3 mm wide, the truncate apex pubescent, with a shallow sulcus medially, the callus at the base of the blade erect, bilobed, purple-black, microscopically densely pubescent, the base extended into a short, broad, straplike claw bent with tension around the free apex of the column-foot; **column** stout, semiterete, 3 mm long, the foot equally long,

ECUADOR: **Imbabura**: Reserva Biológica Los Cedros, sendero hacia el Cerro de La Plata, alt. 2445 m, 13 Mar. 2002, *L. Endara et al. 946* (Holotype: QCE; Isotype: MO), C. Luer illustr. 20214.

This species is closely allied to the similarly long-repent *P. eduardii*. Instead of orange, the lateral sepals are red with a large, yellow, central area. They are more deeply connate to a longer dorsal sepal into a broader, sepaline tube, and the dorsal sepal apparently does not recurve. Instead of a pair of large crests on the inner surface of the lateral sepals, only one smaller crest is present, but on the few flowers available for comparison, this single crest is present either medial to, or lateral to the midvein. The petals and lip of the two species are similar.



Porroglossum eduardii

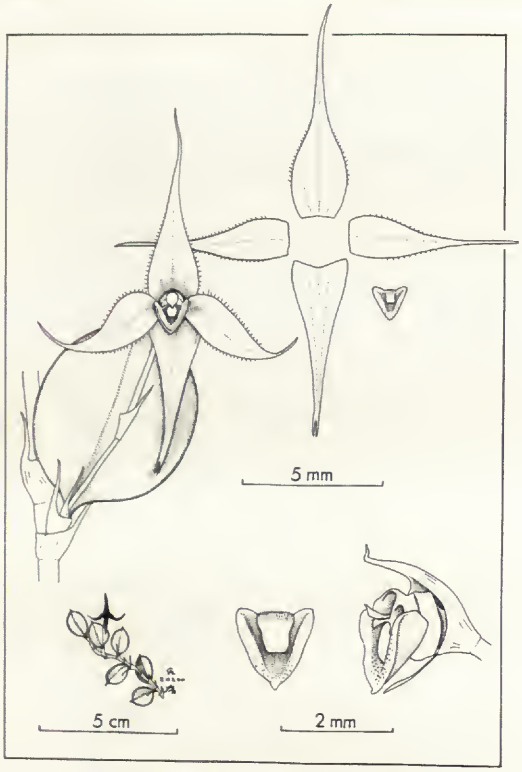


Fig. 1. Brachionidium portillae

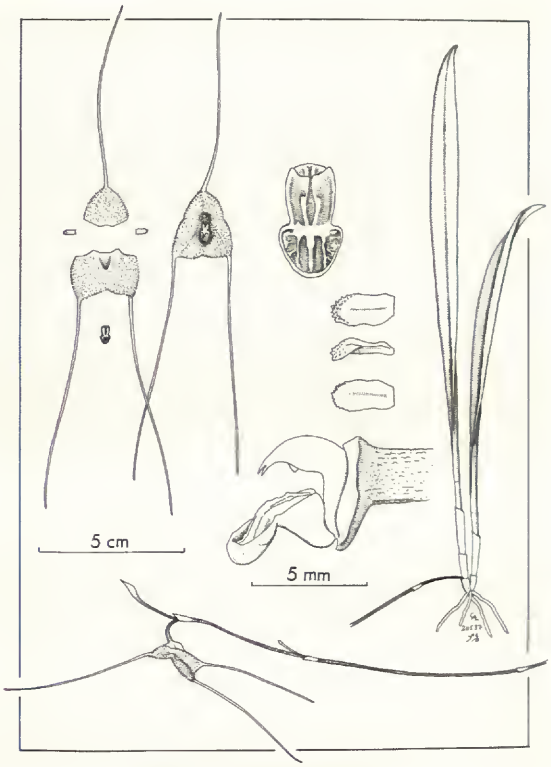


Fig. 2. Dracula maduroi

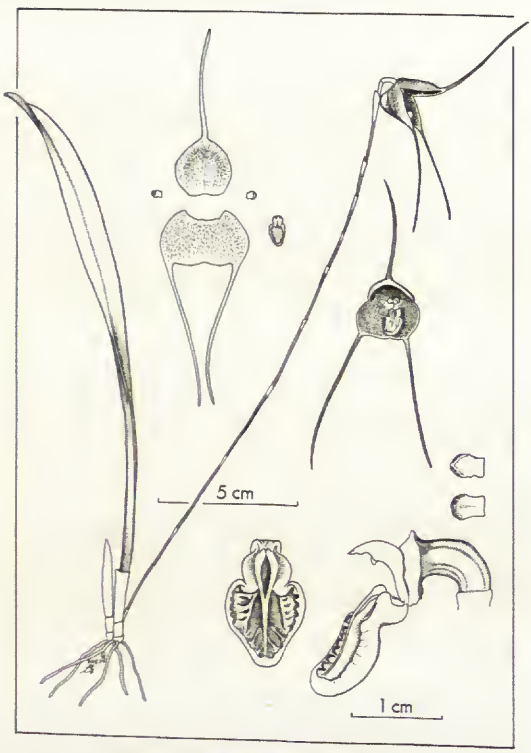


Fig. 3. Dracula mendozae

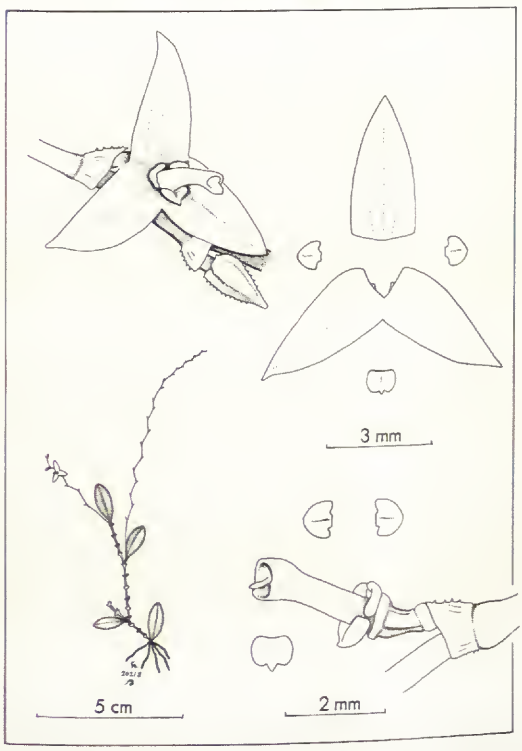


Fig. 4. Lepanthes rigidigitata

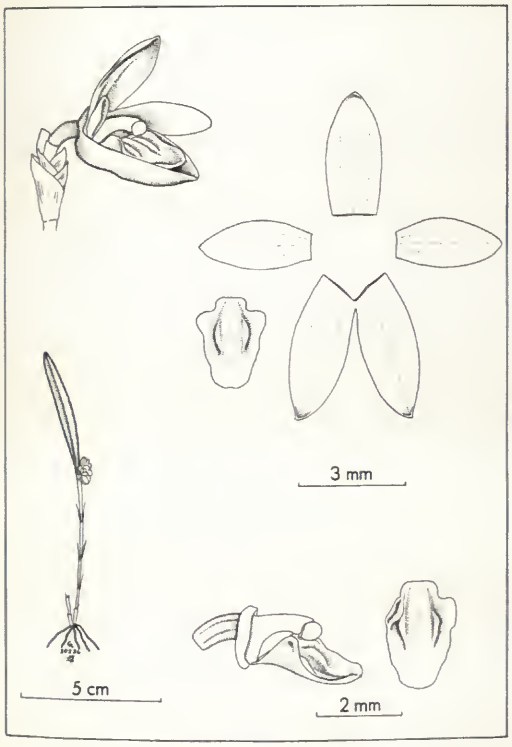


Fig. 5. Octomeria portillae

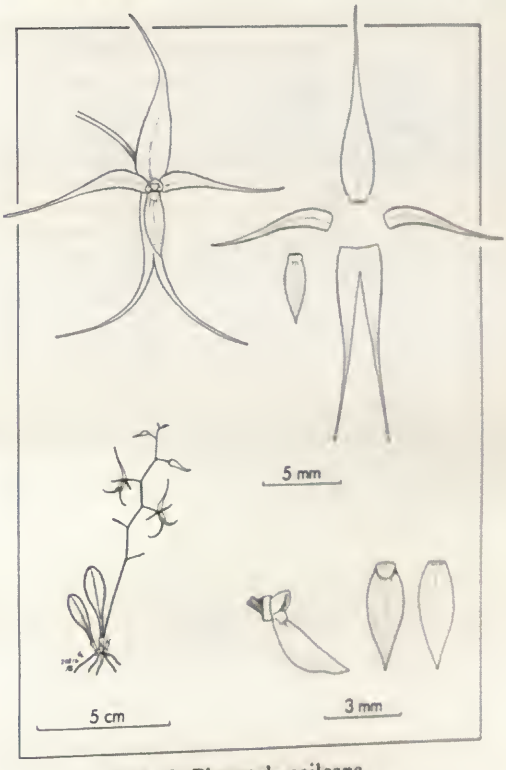


Fig. 6. Platystele gaileana

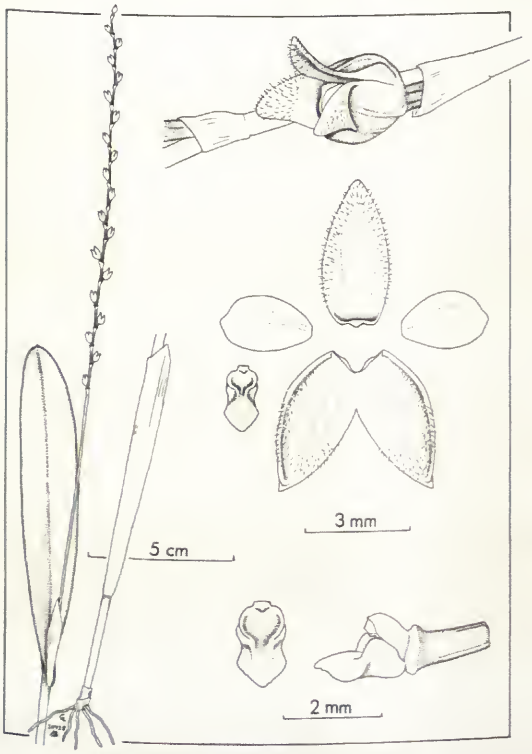


Fig. 7. Pleurothallis erectiflora

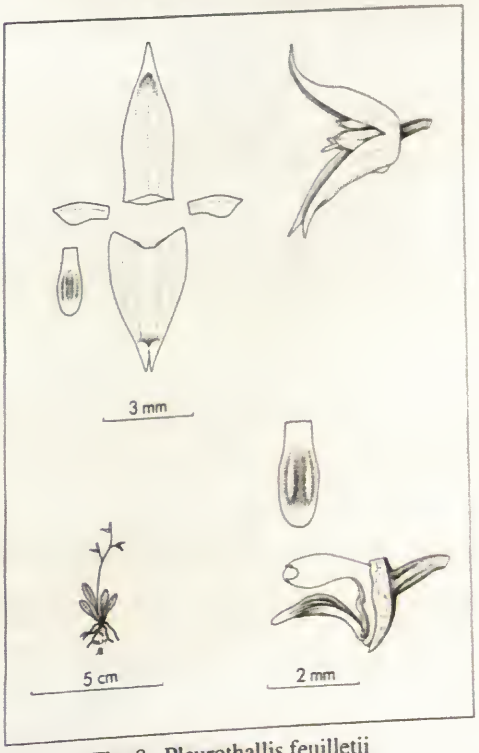


Fig. 8. Pleurothallis feuilletii

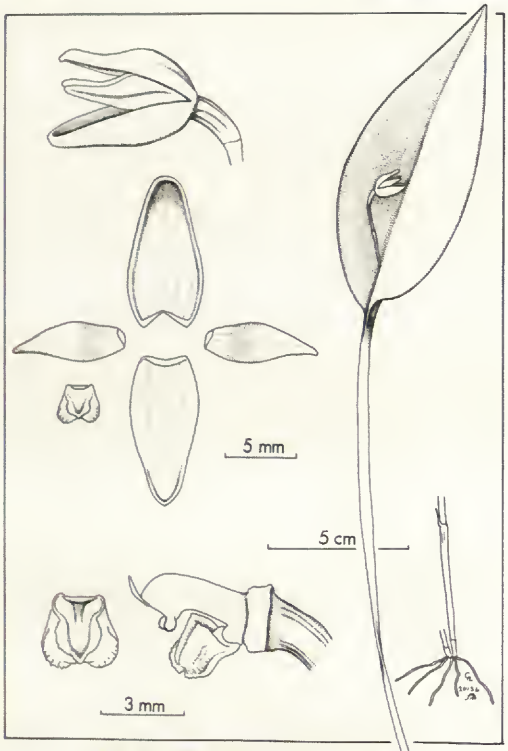


Fig. 9. Pleurothallis jimii Luer

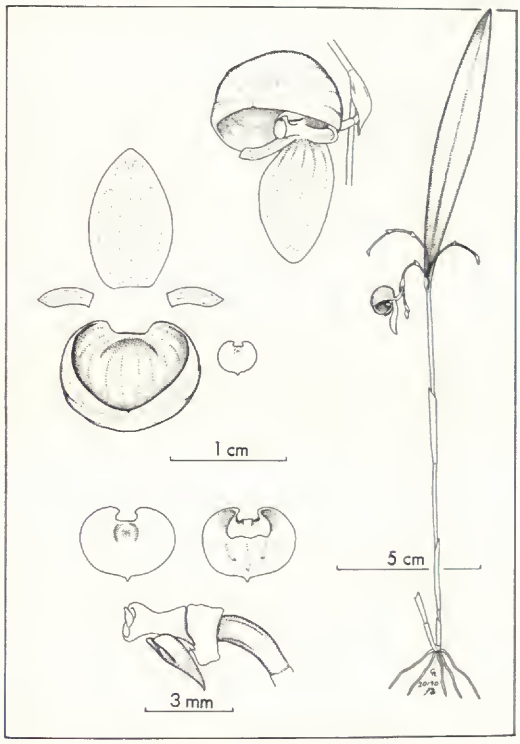


Fig. 10. Pleurothallis tiarata

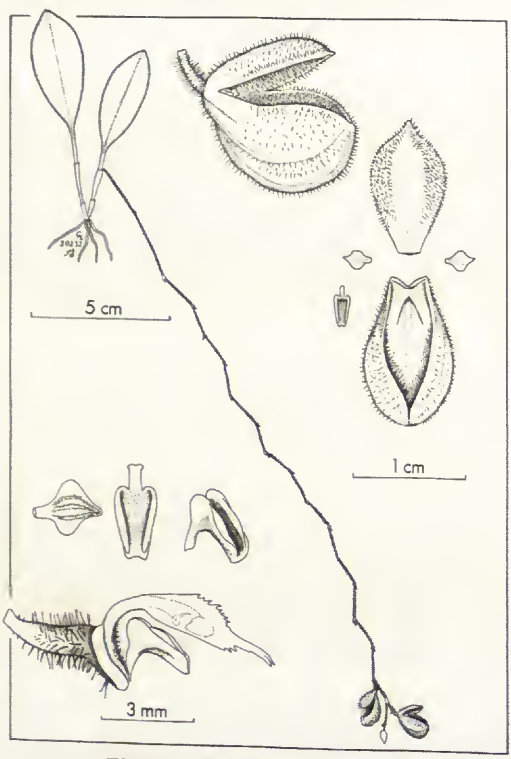


Fig. 11. Pleurothallis ximenae

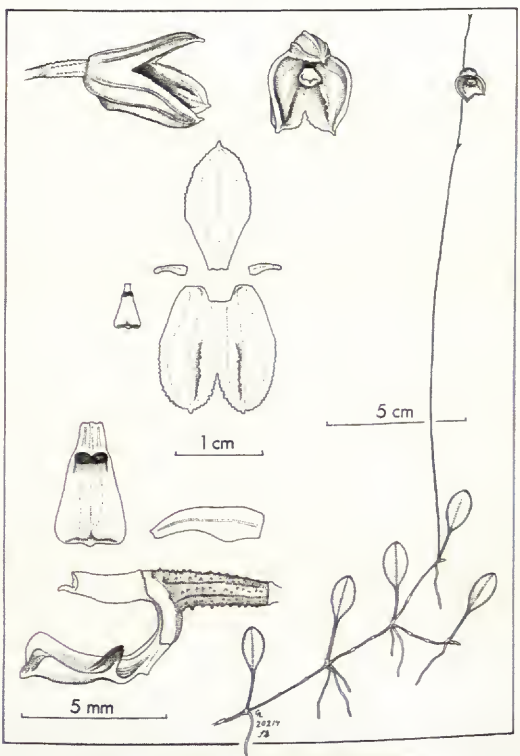


Fig. 12. Porroglossum lorenae

(*795a*)

Masdevallia aptera Luer & L.O'Shaughn., sp. nov.

Ety.: From the Greek *apteron*, "without a wing," referring to the wingless lip and petal.

Inter species sect. *Caudatae* planta parva, sepalo dorsali profunde connato lateralibus expansis, petalis oblongis margine inferiore calloso cum dente parvo retrorso, et labello oblongo obtuso bicalloso distinguitur.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 7-8 mm long, enclosed by 2 thin, tubular sheaths. **Leaf** erect, coriaceous, 4 cm long including a petiole 1.5 cm long, the blade elliptical, obtuse, 1.4 cm wide, cuneate below into the petiole. **Inflorescence** a single flower borne by a slender, more or less erect peduncle 2.5 cm long, with a bract near the base, from low on the ramicaul; floral bract thin, tubular, 7 mm long; pedicel 8 mm long; ovary smooth, 4 mm long; **sepals** pale orange, glabrous, the dorsal sepal subobovate, broadly obtuse, antrorse, 14 mm long, 12 mm wide, 3-veined, the apex abruptly contracted into a thin, suberect tail 2.5 cm long, connate to the lateral sepals for 8 mm to form a gaping, sepaline cup, the lateral sepals elliptical-oblong, 17 mm long, connate 11 mm to form an expanded lamina 22 mm wide, each 3-veined, the apices broadly obtuse, oblique, abruptly contracted into slender tails 15 mm long; **petals** white, oblong, 4.5 mm long, 2 mm wide, 1-veined, the apex obtuse, shallowly bilobed, the labellar half longitudinally callous, ending in a short, acute, retrorse tooth short; **lip** oblong, obtuse, 6 mm long, 1.75 mm wide, with a pair of longitudinal, parallel calli on the middle 2 thirds, the base thickened, hinged beneath; **column** semiterete, 4 mm long, the foot 2 mm long, with the tip hinged to the lip.

ECUADOR: **Zamora-Chinchipe**: collected "near Zamora," alt. 2000 m, by Ecuagenera, Gualaceo, Nov. 2003, *Lynn O'Shaughnessy s.n.* (Holotype: MO), C. Luer illustr 20533.

This little species of *Masdevallia* subsection *Caudatae* could possibly be considered to belong to subsection *Oscillantes*, the boundary being inexact. The flower is not unusual, the sepals being connate into a deep cup with the laterals expanded. Both the petals and lip are oblong without the wings that are found in varying degrees in both subsections.

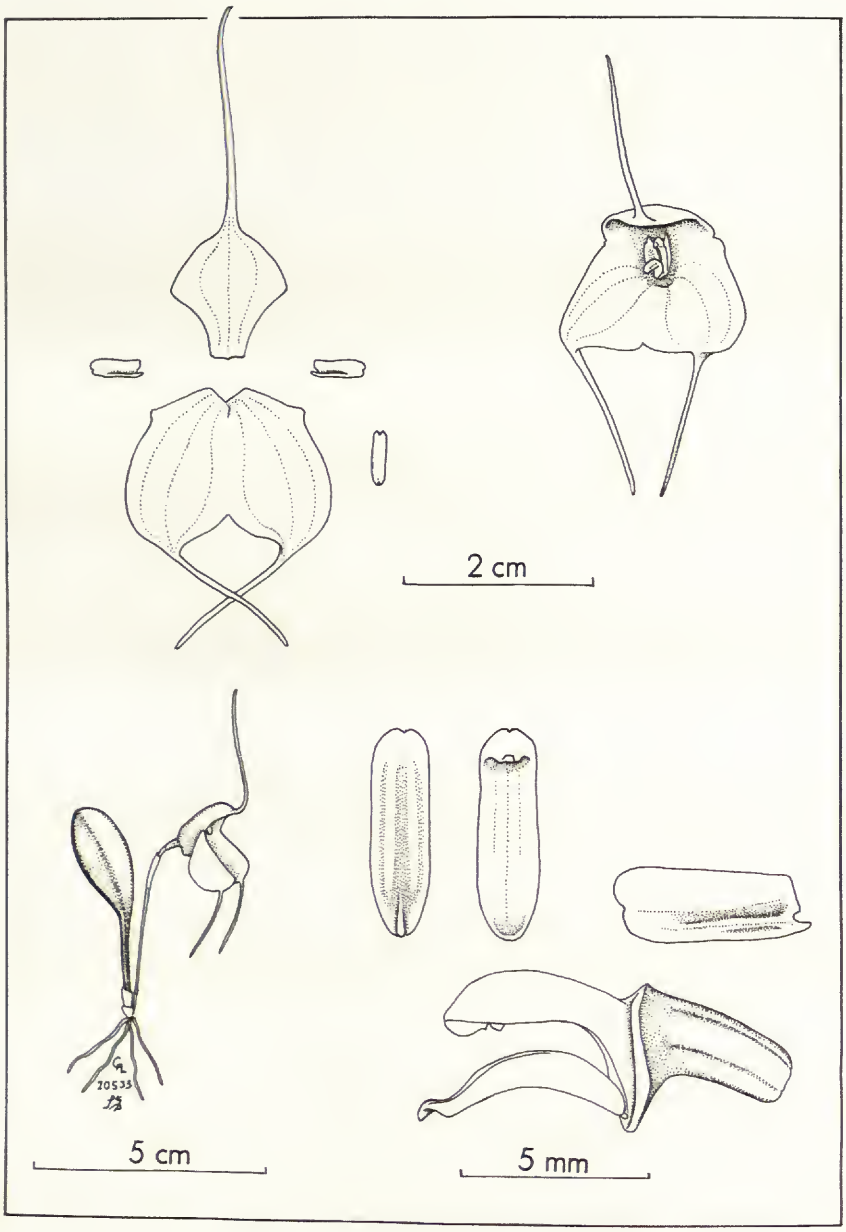


Fig. 660. Masdevallia aptera

(*1145a*)

Masdevallia leathersii Luer, sp. nov.

Ety.: Named for John Leathers of Berkeley, CA, where he successfully cultivates the species.

Inter species subgen. *Amandae*, species haec *M. polystictae* Rchb.f. et affinitatibus similis, sed foliis angustioribus, racemo plurifloro, ovario plano non costato, sepalis magnimaculatis glabris sed minutissime laceratis, sepali dorsali cauda incrassata fusiformi, et petalis lateribus ambabus callosis distinguitur.

Plant medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 3.5-4.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thinly coriaceous, 12-13 cm long including an ill-defined petiole 1-1.5 cm long, the blade narrowly elliptical-obovate, subacute to obtuse, 1.5-2 cm wide, gradually narrowed below into the subpetiolate base. **Inflorescence** an erect, lax, simultaneously several-flowered raceme of up to 6 flowers, up to 24 cm tall including the slender peduncle 6 cm long, with a bract near the middle and another near the base, from low on the ramicaul; floral bract thin, inflated, enclosing the pedicel, ovate, 5-6 mm long; pedicel 5-6 mm long; ovary smooth, non-winged, 2 mm long; **sepals** white, with a few large, purple spots, orange toward the base, glabrous, but with the margins minutely lacerate, the dorsal sepal broadly obovate, concave, 9 mm long, 8 mm wide unexpanded, connate to the lateral sepals for 4 mm to form a subglobose sepaline cup, the rounded free portion abruptly contracted into a thick, fusiform, yellow tail 12 mm long, the lateral sepals elliptical, 9 mm long, 4 mm wide, concave basally and connate 1-2 mm, the apices subacute, contracted into thick tails 11-12 mm long; **petals** translucent white, marked with purple, elliptical-obovate to oblong, 4 mm long, 2 mm wide, 1-veined,the apex truncate apex with an acute apiculum, the margins serrate, with a longitudinal callus along both halves; **lip** yellow to orange, marked with purple, oblong-pandurate, 4.5 mm long, 2 mm wide, divided above the middle by marginal folds, the epichile subtrilobulate, convex, the hypochile oblong, with a truncate-subcordate base, hinged beneath; **column** white, marked with purple, semiterete, 4 mm long, the foot stout, 3 mm long, with a short, thick, incurved extension.

ECUADOR: without collection data, obtained from Ecuagenera, Gualaceo, Ecuador, cultivated in Berkeley, CA, 7 Apr. 2003, by *J. Leathers s.n.* (Holotype: MO).

This species of subgenus *Amanda* is allied to those species most similar to *M. polysticta*, perhaps most similar to *M. caloptera*. It is characterized by narrow leaves and a several-flowered raceme borne by a much longer, slender peduncle. The sepals are white with a few large, purple blotches and suffused with orange toward the base. The tails are proportionately thick with the tail of the dorsal sepal fusiform. The petals and lip are not unusual among the more similar species. Most distinctive is the smooth, non-costate ovary.

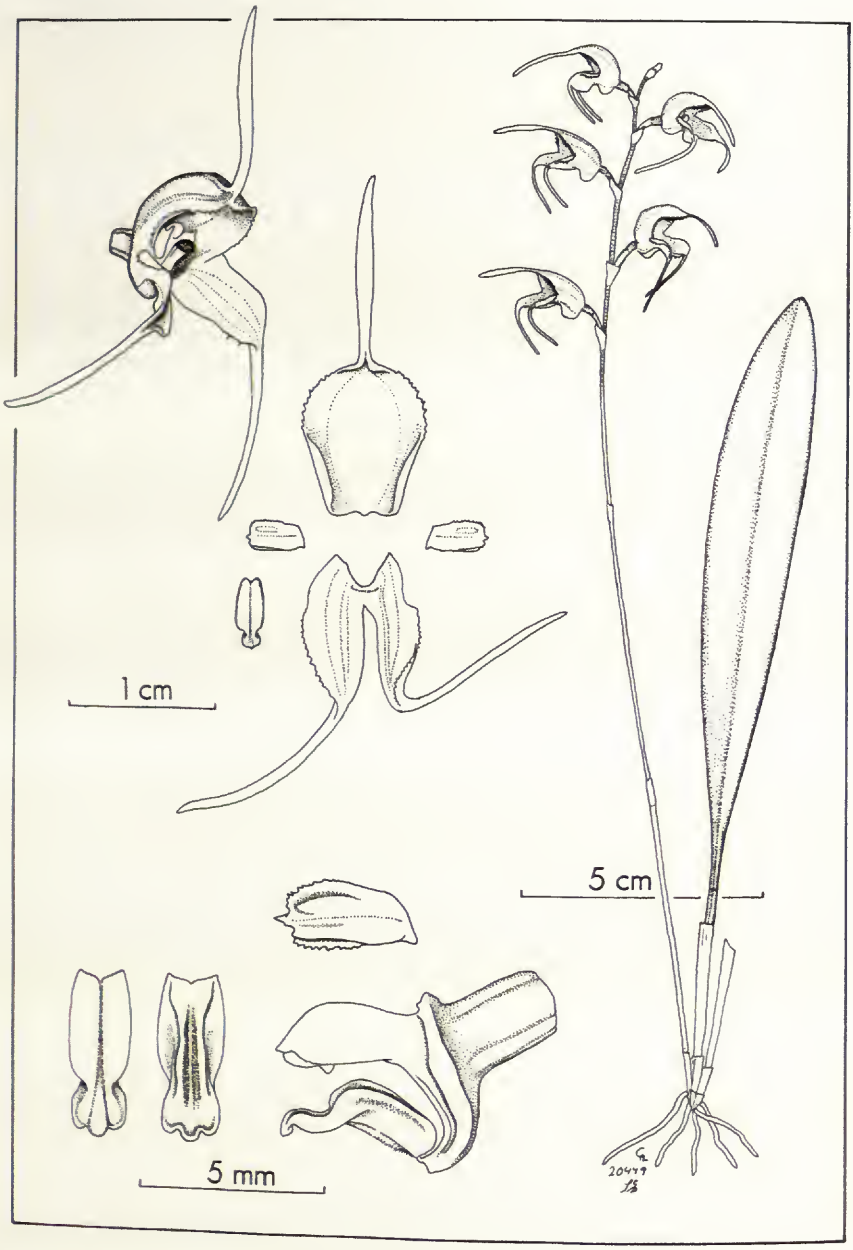


Fig. 661. Masdevallia leathersii

(469a)

Masdevallia lynniana Luer, sp. nov.

Ety.: Named for Lynn O'Shaughnessy of Howell, MI, who successfully cultivates the species.

Species haec *M. merinoi* Luer & Hirtz similis, sed sepalorum tubo latiore, petalis brevioribus latioribusque cum callo brevi obliqui et labelli unguo majore differt.

Plant small, epiphytic, caespitose; roots slender. Ramicauls erect, slender, 7-13 mm long, enclosed by 2 thin, tubular sheaths. **Leaf** erect, thinly coriaceous, 4-6 cm long including a petiole 1.5-2 cm long, the blade narrowly elliptical, acute, 0.9-1.2 cm wide, narrowed below into the slender petiole. **Inflorescence** a few-flowered raceme, borne by a slender, more or less horizontal peduncle up to 8 cm long, with a bract near the middle and another near the base, from low on the ramicaul; floral bract thin, tubular, 5 mm long; pedicel 10 mm long; ovary smooth, 2 mm long; **sepals** white, with numerous, small, purple spots, orange toward the base, glabrous, the dorsal sepal oblong-obovate, 13 mm long, 5 mm wide, 3-veined, acute, contracted into a thin, suberect tail 2-2.5 cm long, connate to the lateral sepals for 9 mm to form a slightly inflated, sepaline tube, the lateral sepals elliptical, 15 mm long, 7.5 mm wide, 3-veined, connate 6 mm, concave basally, the apices acute, contracted into slender tails ca. 2 cm long; **petals** translucent white, elliptical, entire, 4.5 mm long, 2 mm wide, the apex sharply acute, with a short, diagonal callus on the labellar half above the lower quarter; **lip** oblong, obtuse, 8 mm long, 2.75 mm wide, with a pair of longitudinal, parallel calli on the middle 2 thirds, the base thick with a decurved claw 2 mm long, hinged beneath; **column** semiterete, 3.5 mm long, the foot 5.5 mm long, with an inflexed extension 1 mm long.

ECUADOR: **Zamora-Chinchipe**: collected "above Zamora," by Ecuagenera, Gualaceo, cultivated 13 Nov. 2003 in Holland, MI, by *Lynn O'Shaughnessy s.n.* (Holotype: MO), C. Luer 20531.

This colorful, little species of *Masdevallia* section *Amaluzae* is similar to several other members of the section, which are also found in southeastern Ecuador. From *M. amaluzae, M. carmenensis, M. merinoi, M. paquishae*, and *M. patula*, *M. lynniana* is distinguished by a more dilated sepaline tube; short, broad petals with a short, diagonal callus; and an oblong, longitudinally bicallous lip with a large, thick claw.

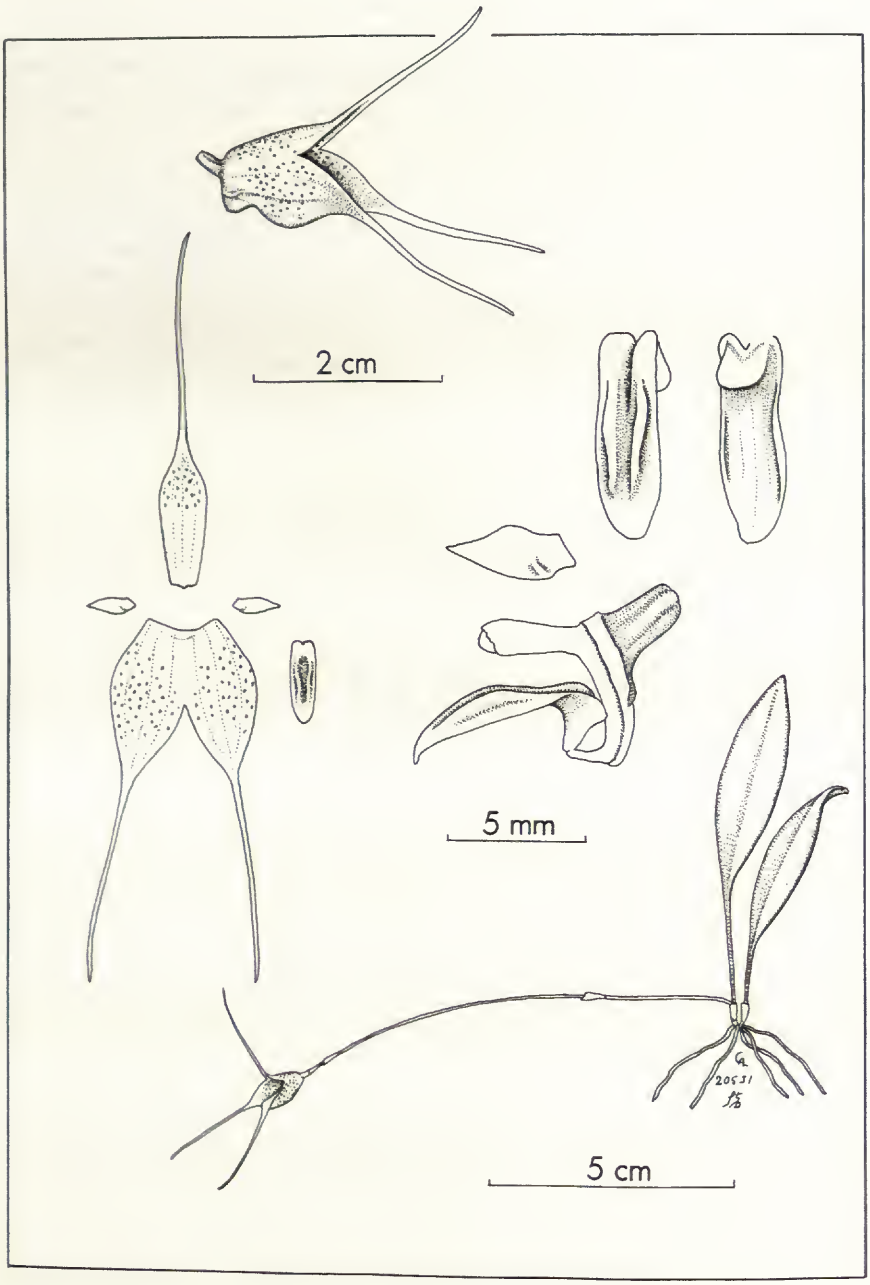


Fig. 662. Masdevallia lynniana

Masdevallia ostaurina Luer & V.N.M. Rao, sp. nov. (*763a*)

Ety.: From the Latin *os*, "the mouth," and *taurinus*, "of bulls," in allusion to the Panamanian province Bocas del Toro where the species was collected.

Inter species *Masdevallia* Sect. *Minutae*, planta grandis, foliis carnosis obovatis, pedunculo erecto folio paulo breviore, sepalis in tubum cylindricum connatis cum caudis incrassatis, petalis truncatis sublobatis, et labello oblongo cum callis humilibus supra medium distinguitur.

Plant large for the section, epiphytic, densely caespitose; roots fleshy. Ramicauls stout, erect, 2-3 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, thickly coriaceous, obovate, obtuse, 11-13 cm long including a petiole 2-3 cm long, 2.2-2.6 mm wide, gradually narrowed below into the base. **Inflorescence** a single flower, followed by at least one successive flower, borne by an erect, purple-spotted, slender peduncle 9 cm long, from low on the ramicaul; floral bract tubular, 10 mm long; pedicel 13 mm long; ovary 5 mm long, smooth; **sepals** connate into a cylindrical, slightly arcuate tube, dull yellow dorsally, rose brown ventrally, glabrous, the dorsal sepal oblong-obovate, 12 mm long, 6 mm wide, 3-veined, the apex obtuse, contracted into an erect, thickened, yellow, purple-spotted tail 22 mm long, connate to the lateral sepals 10 mm, the lateral sepals ovate, oblique, obtuse, 20 mm long, connate 12 mm into a synsepal 15 mm wide, the apices contracted into thick, similar tails 8 mm long; **petals** white, cartilaginous, oblong, 6.5 mm long, 2.5 mm wide, the apex truncate, obscurely bilobed, with a longitudinal callus on the upper half above the middle, the labellar half concave with a longitudinal callus along the margin ending in an erect, oblique, obtuse angle between the middle and the basal thirds; **lip** dark purple, oblong, 7 mm long, 3 mm wide, obtuse, with erect, broadly rounded margins below the middle, the disc shallowly concave between a pair of low, longitudinal calli with superficial folds above the middle, the base retuse, deeply incised, hinged beneath to the column-foot; **column** stout, semiterete, 5 mm long, with a stout foot 5 mm long with an incurved extension.

PANAMA: **Chiriquí**: without more exact locality, alt. 1900-2000 m, collected by A. Maduro and E. Olmos, cultivated at Finca Dracula since 2000, flowered in cultivation in Wilmington, DE, 6 Dec. 2003, by *V.N.M. Rao 161* (Holotype: MO), C. Luer illustr. 20539.

This species from the mountains of westernmost Panama, is a member of section *Minutae*. It is most similar to some of the variations seen in *M. floribunda* which is found farther north in Mesoamerica. It is a large plant compared to many others in the section. The leaves are broad, obtuse, and thickly coriaceous. The peduncle is purple-spotted and erect, bearing the flower below the tips of the leaves. An early bud of a successive flower is present within the floral bract.

The sepals are connate into a cylindrical tube that is yellowish above with a stout, erect, yellow, purple-spotted tail, and purplish below with a pair of close, much shorter, similarly spotted tails. The marginal callus of the petals, the hallmark of the section, defines a concave labellar half above the basal third. An additional longitudinal callus is present on the opposite half above the middle. The lip is oblong with the diagonal superficial folds above the middle.

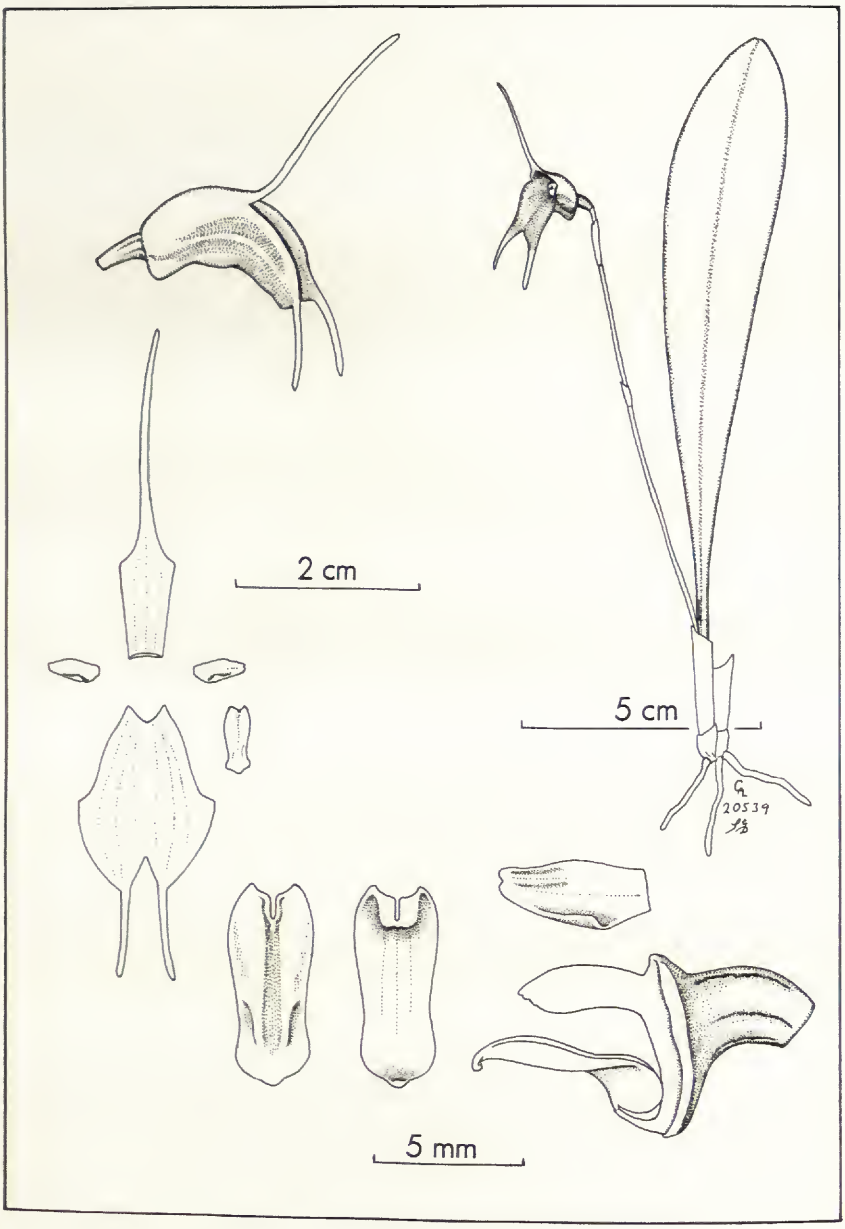


Fig. 663. Masdevallia ostaurina

Masdevallia proboscoidea Luer & V.N.M. Rao, sp. nov.

Ety.: From the Latin *proboscoideus*, "like an elephant trunk," referring to the tail of the dorsal sepal.

Inter species sect. *Alaticaules* planta parva mediocrisve, sepalo dorsali elongato tubuliformi antrorso, synsepalo expanso decurvo acuto inciso, petalis ovatis obtusis, et labelli epichilio hastato obtuso convexo minute tuberculato distinguitur.

Plant small to medium in size, epiphytic, caespitose; roots slender. Ramicauls erect, stout, 1.5 cm long, enclosed by 2-3 tubular sheaths. **Leaf** erect, coriaceous, 8-9 cm long including a petiole ca. 1 cm long, the blade narrowly elliptical, acute to subacute, 1.7-2 cm wide, narrowed below into the petiole. **Inflorescence** a congested, successively several-flowered raceme, borne by a slender, more or less erect, triquetrous peduncle up to 22 cm long, with a bract near the middle and another near the base, from low on the ramicaul; floral bracts thin, imbricating 8-10 mm long; pedicel 9-15 mm long; ovary smooth, 5 mm long; **sepals** fleshy, glabrous, the dorsal sepal light yellow below the middle, suffused with red-purple above the middle, subovate, 25 mm long, 6 mm wide, connate to the lateral sepals for 6 mm to form a broad tube, with sides recurved above the sepaline tube to create an antrorse, cylindrical tube, the lateral sepals subovate, 20 mm long, connate 10 mm into an expanded synsepal, 17 mm wide, shallowly concave at the base, deflexed above the middle, the apices acute; **petals** white, elliptical, 5.5 mm long, 3 mm wide, the apex obtuse, obscurely apiculate, with a longitudinal callus on the labellar half and above the middle; **lip** marked with purple, oblong-subpandurate, 5 mm long, 2.5 mm wide, divided by marginal angles above the middle, the apical portion verrucose, ovate, with a round, denticular margin, with a pair of longitudinal, parallel calli on the apical third, the basal two thirds oblong, the base subtruncate, hinged beneath; **column** semiterete, 5 mm long, the foot 3 mm long, with a short, incurved extension.

ECUADOR: reportedly from the Amazon area, obtained from Ecuagenera, cultivated in Wilmington, DE, Nov. 2003, by *M. Rao 153* (Holotype: MO), C. Luer 20501.

This species of subgenus *Polyantha* section *Alaticaules* is similar vegetatively to many species, but the peduncle is tall and relatively thin. The flowers are produced successively in a congested raceme. The sides of the dorsal sepal are recurved into an arching, antrorse tube. The synsepal is expanded beyond the tube into a decurved, ovate lamina that is bifid into a pair of acute apices. The petals are obtuse and callous above the middle. The epichile of the lip is rounded and verrucose with a denticulate margin.

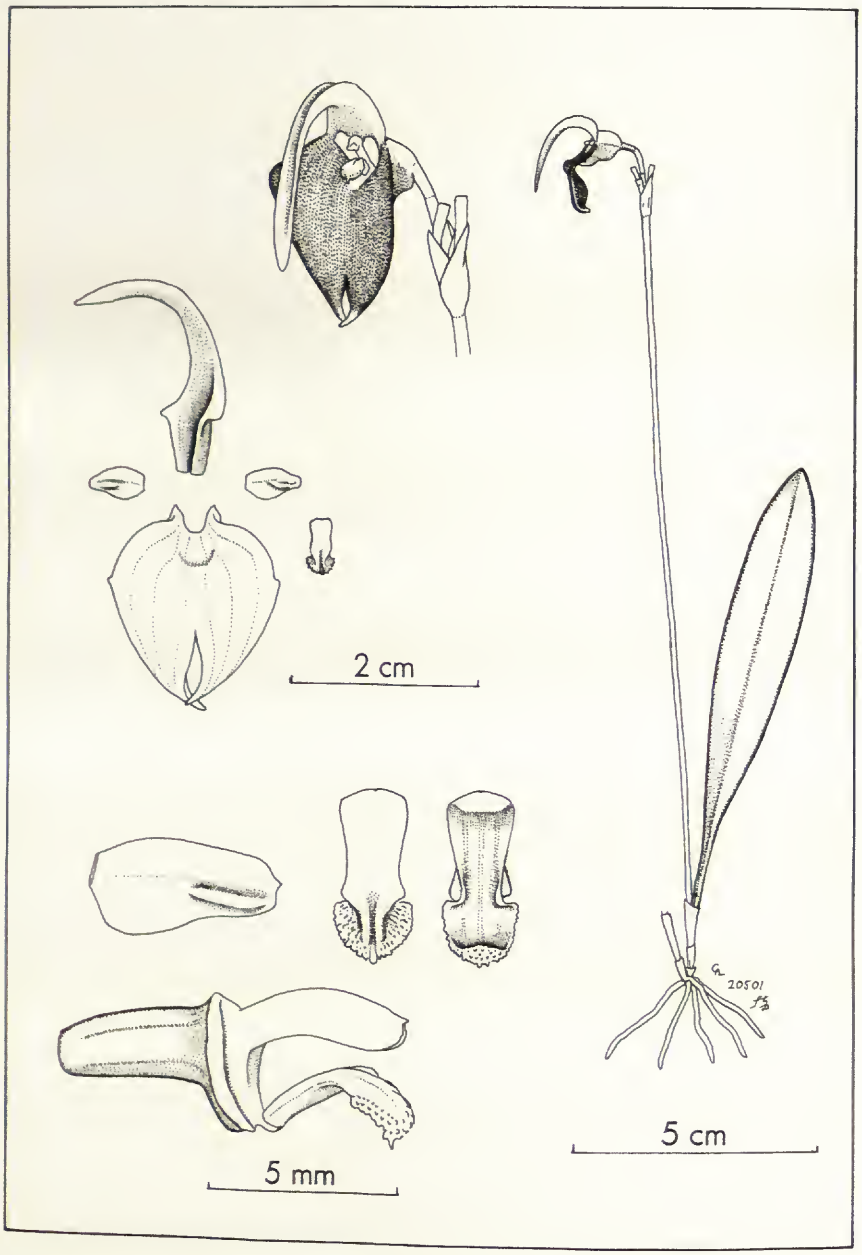


Fig. 664. Masdevallia proboscoidea

NEW GENERA AND COMBINATIONS IN THE PLEUROTHALLIDINAE

If a genus is to be defined as "monophyletic," the following new genera need to be recognized. As presently defined, many "monophyletic" genera will be found to be "polyphyletic" when sequencing of DNA becomes more refined. On the other hand, *Specklinia*, already polyphyletic, is exceedingly variable, there being innumeralbe intermediate variations recognized in subgenera of *Pleurothallis* as *Acuminatia (Anathallis), Effusia* and *Phloephila* that blend within *Specklinia*, requiring new combinations. The distinctions of these taxa disappear in Brazil.

(This list is added too late to alter the preceding pages.)

ABERRANTIA

Aberrantia (Luer) Luer, stat. nov.
Bas: *Pleurothallis* subgen. *Aberrantia* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 76, 2004.
Type: *Pleurothallis aberrans* Luer, Selbyana 2: 382, 1978.
Aberrantia aberrans (Luer) Luer, comb. nov.
Bas: *Pleurothallis aberrans* Luer, Selbyana 2: 382, 1978.

ACIANTHERA

Acianthera Scheidw., Allg. Gartenzeit. 10: 192, 1842.
Type: *Acianthera punctata* Scheidw. = *P. recurva* Lindl., 1841.
Acianthera aculeata (Luer) Luer, comb. nov.
Bas.: *Pleurothallis aculeata* Luer & Hirtz, Lindleyana 11: 141, 1996.
Acianthera acuminatipetala (A.Samp.) Luer, comb. nov.
Bas.: *Pleurothallis acuminatipetala* A.Samp., Arch. Mus. Nac. Rio 17: 58, 1916.
Acianthera albo-rosea (Kraenzl.) Luer, comb. nov.
Bas.: *Octomeria albo-rosea* Kraenzl., Ark. Bot. 16(8): 16, 1921.
Acianthera biceps (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis biceps* Luer & Hirtz, Lindleyana 11: 150, 1996.
Acianthera bissei (Luer) Luer, comb. nov.
Bas.: *Pleurothallis bissei* Luer, Lindleyana 14: 108, 1999.
Acianthera brevifolia (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis breviflora* Lindl., Bot. Reg. 27: Misc. 59, 1841.
Acianthera carinata (C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis carinata* C.Schweinf., Bot. Mus. Leafl. 15: 85, 1951.
Acianthera chamelopoda (Luer) Luer, comb. nov.
Bas.: *Pleurothallis chamelopoda* Luer, Orquideología 20: 201, 1996.
Acianthera consatae (Luer & R.Vásquez) Luer, comb. nov.
Bas.: *Pleurothallis consatae* Luer & R.Vásquez, Rev. Soc. Bol. Bot. 2(2): 133, 1999.
Acianthera costabilis (Luer & R.Vásquez) Luer, comb. nov.
Bas.: *Pleurothallis costabilis* Luer & R.Vásquez, Lindleyana 6: 94, 1991.
Acianthera crassilabia (Ames & C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis crassilabia* Ames & C.Schweinf., Sched. Orch. 8: 25, 1925.
Acianthera cremasta (Luer & J.J.Portilla) Luer, comb. nov.
Bas.: *Pleurothallis cremasta* Luer & J.J.Portilla, Selbyana 22: 119, 2001.
Acianthera cristata (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes cristata* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 57, 1882.
Acianthera cryptophoranthoides (Löfgr.) Luer, comb. nov.
Bas.: *Pleurothallis cryptophoranthoides* Löfgr., Arch. Jard. Bot. Rio de Janeiro 2: 52, 1918.
Acianthera deserta (Luer & R.Vásquez) Luer, comb. nov.
Bas.: *Pleurothallis deserta* Luer & R.Vásquez, Rev. Soc. Bol. Bot. 2: 139, 1999.
Acianthera discophylla (Luer & Carnevali) Luer, comb. nov.
Bas.: *Pleurothallis discophylla* Luer & Carnevali, Novon 3: 158, 1993.
Acianthera erabatensis (Carnevali & G.A.Romera) Luer, comb. nov.
Bas.: *Pleurothallis erebatensis* Carnevali & G.A.Romero, Novon 3: 18, 1993.
Acianthera erythrogramma (Luer & Carnevali) Luer, comb. nov.
Bas.: *Pleurothallis erythrogramma* Luer & Carnevali, Novon 3: 160, 1993.
Acianthera esmeraldae (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis esmeraldae* Luer & Hirtz, Lindleyana 11: 158, 1996.
Acianthera exdrasil (Luer & Toscano) Luer, comb. nov.
Bas.: *Pleurothallis exdrasii* Luer & Toscano, Selbyana 23: 183, 2002.
Acianthera eximia (L.O.Williams) Luer, comb. nov.
Bas.: *Pleurothallis eximia* L.O.Williams, Amer. Orch. Soc. Bull. 11: 166, 1942.
Acianthera farinosa (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis farinosa* Pabst, Arquiv. Jard. Bot. Rio de Janeiro 14: 10, 1956.
Acianthera fumioi (Hashimoto) Luer, comb. nov.
Bas.: *Pleurothallis fumioi* Hashimoto, J. Jap. Bot. 46: 173, 1971.
Acianthera glanduligera (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis glanduligera* Lindl., Comp. Bot. Mag. 2: 355, 1836.
Acianthera gracilisepala (Brade) Luer, comb. nov.
Bas.: *Pleurothallis gracilisepala* Brade, Arquiv. Jard. Bot. Rio de Janeiro 11: 74, 1951.
Acianthera granitica (G.A.Romero & Luer) Luer, comb. nov.
Bas.: *Pleurothallis granitica* G.A.Romero & Luer, Orchid. Venez., ed. 2: 1142, 2000.
Acianthera harpophylla (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis harpophylla* Rchb.f., Bonplandia 3: 72, 1855.
Acianthera henrici (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis henrici* Schltr., Repert. Beih. 8: 58, 1921.
Acianthera heringeri (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis heringeri* Hoehne, Arquiv. Bot. Est. S. Paulo 2: 22, 1946.
Acianthera hoffmannseggiana (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis hoffmannseggiana* Rchb.f., Linnaea 22: 827, 1849.
Acianthera juxtaposita (Luer) Luer, comb. nov.
Bas.: *Pleurothallis juxtaposita* Luer, Lindleyana 6: 103, 1991.

Acianthera kegelii (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis kegelii* Rchb.f., Linnaea 41: 132, 1877.
Acianthera litensis (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis litensis* Luer & Hirtz, Rev. Soc. Bol. Bot. 3: 52, 2001.
Acianthera lojae (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis lojae* Schltr., Repert. Beih. 8: 60, 1921.
Acianthera macuconensis (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis macuconensis* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 17, 1882.
Acianthera magalhanesii (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis magalhanesii* Pabst, Bradea 1: 489, 1975.
Acianthera martinezii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis martinezii* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 76, 2004.
Acianthera marumbyana (Garay) Luer, comb. nov.
Bas.: *Pleurothallis marumbyana* Garay, Arquiv. Jard. Bot. Rio de Janeiro 12: 172, 1953.
Acianthera melachila (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis melachyla* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 19, 1882.
Acianthera melanoglossa (Luer & Escobar) Luer, comb. nov.
Bas.: *Pleurothallis melanoglossa* Luer & R.Escobar, Orquideología 20: 74, 1966.
Acianthera miguelii (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis miguelii* Schltr., Symb. Antil. 7: 493, 1913.
Acianthera morilloi (Carnevali & I.Ramírez) Luer, comb. nov.
Bas.: *Pleurothallis morilloi* Carnevali & I.Ramírez, Novon 3: 119, 1993.
Acianthera moronae (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis moronae* Luer & Hirtz, Lindleyana 11: 171, 1996.
Acianthera nemorosa (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis nemorosa* Barb.Rodr., Gen. Sp. Orch. Nov. 1: 11, 1877.
Acianthera odontotepala (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis odontotepala* Rchb.f., Flora 48: 275, 1865.
Acianthera oligantha (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis oligantha* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 33, 1882.
Acianthera papulifolia (Luer) Luer, comb. nov.
Bas.: *Pleurothallis papulifolia* Luer, Lindleyana 14: 116, 1999.
Acianthera parahybunensis (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes parahybunensis* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 57, 1882.
Acianthera phoenicoptera (Carnevali & G.A.Romero) Luer, comb. nov.
Bas.: *Pleurothallis phoenicoptera* Carnevali & G.A.Romero, Novon 4: 88, 1994.
Acianthera quadricristata (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis quadricristata* Luer & Hirtz, Orquideología 22: 271, 2003.
Acianthera ramosa (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis ramosa* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 17, 1882.
Acianthera renipetala (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes renipetala* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 66, 1882.
Acianthera rodrigoi (Luer) Luer, comb. nov.
Bas.: *Pleurothallis rodrigoi* Luer, Rev. Soc. Bol. Bot. 4: 19, 2003.
Acianthera rostellata (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis rostellata* Barb.Rodr., Gen. Sp. Orch. Nov. 1: 12, 1877.
Acianthera sandaliorum (G.A.Romero & Carnevali) Luer, comb. nov.
Bas.: *Pleurothallis sandaliorum* G.A.Romero & Carnevali, Harvard Pap. Bot. 5: 182, 2000.
Acianthera sicula (Luer & Vásquez) Luer, comb. nov.
Bas.: *Pleurothallis sicula* Luer & Vásquez, Rev. Soc. Bol. Bot. 1(2): 17, 1977.
Acianthera silvae (Luer & Toscano) Luer, comb. nov.
Bas.: *Pleurothallis silvae* Luer & Toscano, Selbyana 23: 190, 2002.
Acianthera teres (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis teres* Lindl., Bot. Reg. 21: sub t. 1797, 1835.
Acianthera toachica (Luer & Dodson) Luer, comb. nov.
Bas.: *Pleurothallis toachica* Luer & Dodson, Lindleyana 11: 188, 1996.
Acianthera tokachii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis tokachii* Luer, Lindleyana 12: 55, 1997.
Acianthera translucida (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis translucida* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 19, 1882.
Acianthera venulosa (Luer & Vásquez) Luer, comb. nov.
Bas.: *Pleurothallis venulosa* Luer & Vásquez, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 70, 2004.
Acianthera viridis (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis viridis* Luer & Hirtz, Lindleyana 11: 194, 1996.
Acianthera zumbae (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis zumbae* Luer & Hirtz, Orquideología 22: 276, 2003.

ANCIPITIA
Ancipitia (Luer) Luer, stat. nov.
Bas.: *Pleurothallis* subgen. *Ancipitia* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 29, 1986.
Type: *Pleurothallis anceps* Luer, Selbyana 5: 159, 1979.
Ancipitia anceps (Luer) Luer, comb. nov.
Bas.: *Pleurothallis anceps* Luer, Selbyana 5: 159, 1979.
Ancipitia anthrax (Luer & Escobar) Luer, comb. nov.
Bas.: *Pleurothallis anthrax* Luer & Escobar, Orquideología 14: 130, 1981.
Ancipitia caniceps (Luer) Luer, comb. nov.
Bas.: *Pleurothallis caniceps* Luer, Selbyana 7: 114, 1982.
Ancipitia caprina (Luer & Escobar) Luer, comb. nov.
Bas.: *Pleurothallis caprina* Luer & Escobar, Orquideología 14: 138, 1981.
Ancipitia condorensis (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis condorensis* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 31: 14, 1989.
Ancipitia crocodiliceps (Rchb. f.) Luer, comb. nov.
Bas.: *Pleurothallis crocodiliceps* Rchb. f., Bonplandia 3: 72, 1855.
Ancipitia cypelligera (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis cypelligera* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 107, 2002.
Ancipitia driessenii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis driessenii* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 128, 2000.
Ancipitia dunstervillei (Foldats) Luer, comb. nov.
Bas.: *Pleurothallis dunstervillei* Foldats, Acta Bot. Venez. 3: 371, 1968.
Ancipitia duplex (Luer & Escobar) Luer, comb. nov.
Bas.: *Pleurothallis duplex* Luer & Escobar, Orquideología 16: 22, 1983.
Ancipitia eumecocaulon (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis eumecocaulon* Schltr., Repert. Beih. 19: 187, 1923.
Ancipitia furcifera (Luer) Luer, comb. nov.
Bas.: *Pleurothallis furcifera* Luer, Selbyana 3: 108, 1976.
Ancipitia gratiosa (Rchb. f.) Luer, comb. nov.
Bas.: *Pleurothallis gratiosa* Rchb. f., Bonplandia 2: 25, 1854.
Ancipitia harpago (Luer) Luer, comb. nov.
Bas.: *Pleurothallis harpago* Luer, Selbyana 5: 167, 1979.
Ancipitia inornata (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis inornata* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 31: 30, 1989.
Ancipitia jimii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis jimii* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 235, 2004.
Ancipitia londonoi (Luer) Luer, comb. nov.
Bas.: *Pleurothallis londonoi* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 61(4): 6, 1996.
Ancipitia membracidoides (Luer), Luer, comb. nov.
Bas.: *Pleurothallis membracidoides* Luer, Phytologia 47: 77, 1980.
Ancipitia niveoglobula (Luer) Luer, comb. nov.
Bas.: *Pleurothallis niveoglobula* Luer, Selbyana 1: 258, 1975.

Ancipitia odobeniceps (Luer) Luer, comb. nov.
Bas. *Pleurothallis odobeniceps* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 38: 14, 1989.
Ancipitia onagriceps (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis onagriceps* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 31: 40, 1989.
Ancipitia praecipua (Luer) Luer, comb. nov.
Bas.: *Pleurothallis praecipua* Luer, Phytologia 46: 370, 1980.
Ancipitia solium (Luer) Luer, comb. nov.
Bas.: *Pleurothallis solium* Luer, Selbyana 7: 123, 1982.
Ancipitia spathulipetala (Luer) Luer, comb. nov.
Bas.: *Pleurothallis spathulipetala* Luer, Orquideología 20: 227, 1996.
Ancipitia tetragona (Luer & Escobar) Luer, comb. nov.
Bas.: *Pleurothallis tetragona* Luer & Escobar, Orquideología 14: 178, 1981.
Ancipitia viduata (Luer) Luer, comb. nov.
Bas.: *Pleurothallis viduata* Luer, Phytologia 49: 221, 1981.
Ancipitia vorator (Luer & Vásquez) Luer, comb. nov.
Bas.: *Pleurothallis vorator* Luer & Vásquez, Phytologia 46: 374, 1980.

ANTILLA
Antilla (Luer) stat. nov.
Bas.: *Pleurothallis* subgen. *Antilla* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 39, 2000.
Type: *Pleurothallis trichophora* Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 326, 1858.
Antilla alainii (Dod) Luer, comb. nov.
Bas.: *Pleurothallis alainii* Dod, Moscosoa 1(3): 54, 1978.
Antilla alpestris (Sw.) Luer, comb. nov.
Bas.: *Epidendrum alpestre* Sw., Prodr. 125, 1788.
Antilla appendiculata (Cogn.) Luer, comb. nov.
Bas.: *Pleurothallis appendiculata* Cogn., Symb. Antill. 7: 174, 1912.
Antilla bahorucensis (Luer) Luer comb. nov.
Bas.: *Pleurothallis bahorucensis* Luer, Lindleyana 14: 108, 1999.
Antilla erosa (Urb.) Luer, comb. nov.
Bas.: *Pleurothallis erosa* Urb., Repert. 15: 104, 1917.
Antilla laxa (Sw.) Luer, comb. nov.
Bas.: *Epidendrum laxum* Sw., Prodr. 125, 1788.
Antilla parvula (Ames & C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis parvula* Ames & C.Schweinf., Sched. Orch. 8: 30, 1925.
Antilla pendens (Dod) Luer, comb. nov.
Bas.: *Pleurothallis pendens* Dod, Moscosoa 1(2): 49, 1977.
Antilla privigna (Luer) Luer, comb. nov.
Bas.: *Pleurothallis privigna* Luer, Lindleyana 14: 118, 1999.
Antilla prostrata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis prostrata* Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 327, 1858.
Antilla quisqueyana (Dod) Luer, comb. nov.
Bas.: *Pleurothallis quisqueyana* Dod, Moscosoa 1(2): 51, 1977.
Antilla trichophora (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis trichophora* Lindl., Ann. Mag. Nat. Hist. ser. 3, 1: 326, 1858.

APODA-PROREPENTIA
Apoda-prorepentia (Luer) Luer, stat. nov.
Type: *Epidendrum testaefolium* Sw., Prodr. 122, 1788. = *Pleurothallis testaefolia* (Sw.) Lindl.
Bas.: *Pleurothallis* subgen. *Apoda-prorepentia* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 31, 1986.
Plantae repentes, ramicaules abbreviati, folia sessiles, flos in spatha magna occulto.
Apoda-prorepentia calypso (Luer) Luer, comb. nov.
Bas.: *Pleurothallis calypso* Luer, Phytologia 46: 358, 1980.
Apoda-prorepentia dodsonii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis dodsonii* Luer, Selbyana 3: 96. 1976.
Apoda-prorepentia karlii (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis karlii* Pabst, Arquiv. Jard. Bot. Rio de Janeiro 14: 14, 1956.
Apoda-prorepentia kateora (Garay) Luer, comb. nov.
Bas.: *Physothallis kateora* Garay, Orquideología 9: 133, 1973.
Apoda-prorepentia melanochthoda (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis melanochthoda* Luer & Hirtz, Lindleyana 11: 169, 1996.
Apoda-prorepentia portilloi (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Pleurothallis portilloi* Luer & R.Escobar, Orquideología 15: 144, 1982.
Apoda-prorepentia testaefolia (Sw.) Luer, comb. nov.
Bas.: *Epidendrum testaefolium* Sw., Nov. Gen. Sp. Pl. Prodr. 122, 1788.

ARELDIA
Areldia Luer, stat. et nom. nov.
Type: *Pleurothallis dressleri* Luer, Selbyana 3: 98, 1976.
Planta minutissima repens; flos proportione maxissimus; labellum bicristatum callo erecto papilloso.
Syn.: *Pleurothallis* subgen. *Dresslera* Luer.
Areldia dressleri (Luer) Luer, comb. nov.
Bas.: *Pleurothallis dressleri* Luer, Selbyana 3: 98, 1976.

ATOPOGLOSSUM
Atopoglossum Luer, gen. nov.
Type: *Pleurothallis ekmanii* Schltr., Symb. Ant. 9: 61, 1923.
Plantae perparvae; ramicaules abbreviati; sepala elliptica plus minusve libera; petala integres; pollinia octo.
Atopoglossum ekmanii (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis ekmanii* Schltr., Symb. Ant. 9: 61, 1923.
Atopoglossum excentricum (Luer) Luer, comb. nov.
Bas.: *Octomeria excentrica* Luer, Lindleyana 14(2): 106, 1999.
Atopoglossum prostratum (H.Stenzel) Luer, comb. nov.
Bas.: *Octomeria prostrata* H.Stenzel, Lindleyana 16: 26, 2001.

BRENESIA
Brenesia Schltr., Repert. Beih. 19: 200, 1923.
Type: *Brenesia costaricensis* Schltr. = *Pleurothallis johnsonii* Ames = *Brenesia johnsonii* (Ames) Luer.
Brenesia aspasicensis (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis aspasicensis* Rchb.f., Bonplandia 3: 73, 1855.
Brenesia balaeniceps (Luer & Dressler) Luer, comb.nov.
Bas.: *Pleurothallis balaeniceps* Luer & Dressler, Orquideología 16: 47, 1986.
Brenesia herrerae (Luer) comb. nov.
Bas.: *Pleurothallis herrerae* Luer, Lindleyana 6: 100, 1991.
Brenesia johnsonii (Ames) Luer, comb. nov.
Bas.: *Pleurothallis johnsonii* Ames, Sched. Orchid. 2: 21-22, 1923.
Brenesia lappiformis (A.H.Heller & L.O.Williams) Luer, comb. nov.
Bas.: *Pleurothallis lappiformis* A.H.Heller & L.O.Williams, Fieldiana Bot. 31: 42, 1964.
Brenesia pan (Luer) Luer, comb. nov.
Bas.: *Pleurothallis pan* Luer, Selbyana 3: 360, 1977.
Brenesia stonei (Luer) Luer, comb. nov.
Bas.: *Pleurothallis stonei* Luer, Phytologia 44: 171, 1979.
Brenesia sempergemmata (Luer) Luer, comb. nov.
Bas.: *Pleurothallis sempergemmata* Luer, Selbyana 3: 386, 1977.
Brenesia tomentosa (Luer) Luer, comb. nov.
Bas.: *Pleurothallis tomentosa* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 76, 177, 1999.
Brenesia uncinata (Fawc.) Luer, comb. nov.
Bas.: *Pleurothallis uncinata* Fawc., J. Bot. 33: 12, 1895.

COLOMBIANA
Colombiana Ospina, Orquideología 8: 230, 1974.
Type: *Colombiana garayana* Ospina, Orquideología 8: 230, 1974.
Syn.: *Pleurothallis* subgen. *Scopula* Luer.
Colombiana aspergillum (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis aspergillum* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 31: 56, 1989.

Colombiana penicillata (Luer) Luer, comb. nov.
Bas.: *Pleurothallis penicillata* Luer, Phytologia 47: 78, 1980.
Colombiana ruscaria (Luer), Luer, comb. nov.
Bas.: *Pleurothallis ruscaria* Luer, Phytologia 47: 79, 1980.
Colombiana scoparum (Rchb. f.) Luer, comb. nov.
Bas.: *Pleurothallis scoparum* Rchb.f., Flora 71: 153, 1888.
Colombiana tetroxys (Luer) Luer, comb. nov.
Bas: *Pleurothallis tetroxys* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 31: 66, 1989.

CROCODEILANTHE
Crocodeilanthe Rchb.f. & Warsz., Bonplandia 2: 114, 1854.
Type: *Crocodeilanthe xiphizusa* Rchb.f. & Warsz., Bonplandia 2: 114, 1854.
Crocodeilanthe aligera (Luer & R.Vásquez) Luer, comb. nov.
Bas.: *Pleurothallis aligera* Luer & R.Vásquez, Rev. Soc. Bol. Bot. 1(2): 9, 1997.
Crocodeilanthe aloisii (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis aloisii* Schltr., Repert. Beih. 8: 57, 1921.
Crocodeilanthe apposita (Luer) Luer, comb. nov.
Bas.: *Pleurothallis apposita* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 12, 1998.
Crocodeilanthe atwoodii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis atwoodii* Luer, Lindleyana 11: 67, 1996.
Crocodeilanthe avirostris (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis avirostris* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 13, 1998.
Crocodeilanthe batillacea (Luer) Luer, comb. nov.
Bas.: *Pleurothallis batillacea* Luer, Selbyana 3: 58, 1976.
Crocodeilanthe bucaramangae (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Pleurothallis bucaramangae* Luer & R.Escobar, Orquideología, 20: 38, 1996.
Crocodeilanthe cassidis (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis cassidis* Lindl., Ann. Mag. Nat. Hist. ser. 1, 15: 384, 1845.
Crocodeilanthe cauliflora (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis cauliflora* Lindl., Comp. Bot. Mag. 2: 355, 1836.
Crocodeilanthe choerorhyncha (Luer) Luer, comb. nov.
Bas.: *Pleurothallis choerorhyncha* Luer, Orquideología 20: 203, 1996.
Crocodeilanthe cosangae (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis cosangae* Luer & Hirtz, Monogr. Syst. Syst. Bot. Missouri Bot. Gard. 65: 18, 1998.
Crocodeilanthe croatii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis croatii* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 18, 1998.
Crocodeilanthe cuatrecasasii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis cuatrecasasii* Luer, Orquideología 20: 208, 1996.
Crocodeilanthe cyathiflora (C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis cyathiflora* C.Schweinf., Bot. Mus. Leafl. 15: 90, 1951.
Crocodeilanthe domingensis (Cogn.) Luer, comb. nov.
Bas.: *Pleurothallis domingensis* Cogn., Symb. Antill. 6: 402, 1909.
Crocodeilanthe elegans (Kunth) Luer, comb. nov.
Bas.: *Dendrobium elegans* Kunth, Nov. Gen. Sp. 1: 358, 1816.
Crocodeilanthe erectiflora (Luer) Luer, comb. nov.
Bas.: *Pleurothallis erectiflora* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 236, 2004.
Crocodeilanthe expansa (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis expansa* Lindl., Folia Orch. Pleuro. 4, 1859.
Crocodeilanthe floribunda (Poepp. & Endl.) Luer, comb. nov.
Bas.: *Pleurothallis floribunda* Poepp. & Endl., Nov. Gen. Sp. 1: 48, 1836.
Crocodeilanthe fons-florum (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis fonsflorum* Lindl., Folia Orch. Pleuro. 5, 1859.
Crocodeilanthe galeata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis galeata* Lindl., Ann. Mag. Nat. Hist. ser. 1, 15: 107, 1845,
Crocodeilanthe galerasensis (Luer) Luer, comb. nov.
Bas.: *Pleurothallis galerasensis* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 28, 1998.
Crocodeilanthe gigas (Luer & Escobar) Luer, comb. nov.
Bas.: *Pleurothallis gigas* Luer & R.Escobar, Orquideología 20: 52, 1996.
Crocodeilanthe infundibulosa (Luer) Luer, comb. nov.
Bas.: *Pleurothallis infundibulosa* Luer, Orquideología 20: 210, 1996.
Crocodeilanthe jamesonii (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis jamesonii* Lindl., Bot. Reg. 21: sub t. 1797, 1836.
Crocodeilanthe jurisdixii (Luer & Escobar) Luer, comb. nov.
Bas.: *Pleurothallis jurisdixii* Luer & R.Escobar, Orquideología 20: 64, 1996.
Crocodeilanthe laevigata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis laevigata* Lindl., Ann. Mag. Nat. Hist. ser. 1, 15: 106, 1845.
Crocodeilanthe laevis (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis laevis* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 33, 1998.
Crocodeilanthe laminata (Luer) Luer, comb. nov.
Bas.: *Pleurothallis laminata* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 33, 1998.
Crocodeilanthe lehmanniana (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis lehmanniana* Schltr., Repert. Beih. 7: 235, 1920.
Crocodeilanthe ligulata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis ligulata* Lindl., Folia Orch. Pleuro. 29, 1859.
Crocodeilanthe mandonii (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis mandonii* Rchb.f., Xenia Orch. 3: 24, 1878.
Crocodeilanthe maxima (Luer) Luer, comb. nov.
Bas.: *Pleurothallis maxima* Selbyana 3: 140, 1976.
Crocodeilanthe molleturoi (Luer & Dodson) Luer, comb. nov.
Bas.: *Pleurothallis molleturoi* Luer & Dodson, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 38, 1998.
Crocodeilanthe moritzii (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis moritzii* Rchb.f., Linnaea 22: 824, 1849.
Crocodeilanthe nivalis (Luer) Luer, comb. nov.
Bas.: *Pleurothallis nivalis* Luer, Selbyana 1: 420, 1976.
Crocodeilanthe orectopus (Luer) Luer, comb. nov.
Bas.: *Pleurothallis orectopus* Luer, Selbyana 3: 356, 1977.
Crocodeilanthe pachypus (Lehm. & Krzl.) Luer, comb. nov.
Bas.: *Stelis pachypus* Lehm. & Krzl., Bot. Jahrb. Syst. 26: 447, 1899.
Crocodeilanthe possoae (Luer) Luer, comb. nov.
Bas: *Pleurothallis possoae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 129, 2000.
Crocodeilanthe patateënsis (Luer) Luer, comb. nov.
Bas.: *Pleurothallis patateënsis* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 42, 1998.
Crocodeilanthe pellucida (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis pellucida* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 42, 1998.
Crocodeilanthe pennelliana (Luer) Luer, comb. nov.
Bas.: *Pleurothallis pennelliana* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 43, 1998.
Crocodeilanthe pilifera (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis pilifera* Lindl., Folia Orch. Pleuro. 9, 1859.
Crocodeilanthe popayanensis (Lehm. & Krzl.) Luer, comb. nov.
Bas.: *Pleurothallis popayanensis* Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 438, 1899.
Crocodeilanthe praealta (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis praealta* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 45, 1998.
Crocodeilanthe prolificans (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis prolificans* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 45, 1998.
Crocodeilanthe pulchella (Kunth) Luer, comb. nov.
Bas.: *Stelis pulchella* Kunth, Nov. Gen. Sp. 1: 364, 1816.
Crocodeilanthe retusiloba (C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis retusiloba* C.Schweinf., Bot. Mus. Leafl. 15: 100, 1951.

Crocodeilanthe rhodotantha (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis rhodotantha* Rchb.f., Linnaea 22: 825, 1849.
Crocodeilanthe rictoria (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis rictoria* Rchb.f., Linnaea 41: 14, 1877.
Crocodeilanthe salpingantha (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis salpingantha* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 50, 1998.
Crocodeilanthe scansor (Luer) Luer, comb. nov.
Bas.: *Pleurothallis scansor* Luer, Phytologia 49: 216, 1981.
Crocodeilanthe simplicilabia (C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis simplicilabia* C.Schweinf., Rev. Acad. Colomb. Ci. Exact. 5(19): 350, 1943.
Crocodeilanthe siphonantha (Luer) Luer, comb. nov.
Bas.: *Pleurothallis siphonantha* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 52, 1998.
Crocodeilanthe spathosa (Luer & Escobar) Luer, comb. nov.
Bas.: *Pleurothallis spathosa* Luer & R.Escobar, Orquideología 20: 86, 1996.
Crocodeilanthe stelidiopsis (Luer) Luer, comb. nov.
Bas.: *Pleurothallis stelidiopsis* Luer, Phytologia 49: 128, 1981.
Crocodeilanthe taxis (Luer) Luer, comb. nov.
Bas.: *Pleurothallis taxis* Luer, Selbyana 5: 184, 1979.
Crocodeilanthe tunguraguae (Lehm. & Kraenzl.) Luer, comb. nov.
Bas.: *Pleurothallis tunguraguae* Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 439, 1899.
Crocodeilanthe vargasii (C.Schweinf.) Luer, comb. nov.
Bas. *Pleurothallis vargasii* C.Schweinf., Bot. Mus. Leafl. 10: 192, 1942.
Crocodeilanthe vegrandis (Luer & Dodson) Luer, comb. nov.
Bas. *Pleurothallis vegrandis* Luer & Dodson, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 56, 1998.
Crocodeilanthe velaticaulis (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis velaticaulis* Rchb.f., Linnaea 22: 824, 1849.
Crocodeilanthe verbiformis (Luer) Luer, comb. nov.
Bas.: *Pleurothallis verbiformis* Luer, Selbyana 2: 389, 1978.
Crocodeilanthe virgata (Luer) Luer, comb. nov.
Bas.: *Pleurothallis virgata* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 59, 1998.
Crocodeilanthe weddelliana (Rchb.f. ex Kraenzl.) Luer, comb. nov.
Bas.: *Pleurothallis weddelliana* Rchb.f. ex Kraenzl.,
Crocodeilanthe zunagensis (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis zunagensis* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 61, 1998.

CUCUMERIA
Cucumeria Luer, stat. et nom. nov.
Bas. *Pleurothallis* subgen. *Specklinia* sect. *Cucumeres* Luer, Momogr. Syst. Bot. Missouri Bot. Gard. 20: 81, 1986.
Type: *Pleurothallis cucumeris* Luer, Selbyana 5: 162, 1979.
Cucumeria cucumeris (Luer) comb. nov.
Bas.: *Pleurothallis cucumeris* Luer, Selbyana 5: 162, 1979.

DIDACTYLUS
Didactylus Luer, stat. nov.
Bas.: *Pleurothallis* subgen. *Didactylus* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 77, 2004.
Type: *Pleurothallis butcheri* L.O.Williams, Fieldiana Bot. 29: 346, 1961.
Didactulus butcheri (L.O.Williams) Luer, comb. nov.
Bas.: *Pleurothallis butcheri* L.O.Williams, Fieldiana Bot. 29: 346, 1961.
Didactylus oscitans (Ames) Luer, comb. nov.
Bas.: *Pleurothallis oscitans* Ames, Bot. Mus. Leafl. 2: 25, 1934.
Didactylus paradoxa (Luer & Dalström) Luer, comb. nov.
Bas.: *Pleurothallis paradoxa* Luer & Dalström, Lindleyana 11: 177, 1996.
Didactylus thysana (Luer & Portilla) Luer, comb. nov.
Bas.: *Pleurothallis thysana* Luer & Portilla, Rev. Soc. Bol. Bot. 3: 62, 2001.

DRACONTIA
Dracontia (Luer) Luer, stat. nov.
Bas.: *Pleurothallis* subgen. *Dracontia* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 38, 1986.
Type: *Pleurothallis tuerckheinii* Schltr., Repert. 10: 292, 1912.
Dracontia carnosilabia (Heller & Hawkes) Luer, comb. nov.
Bas.: *Pleurothallis carnosilabia* A.H.Heller & A.D. Hawkes, Phytologia 14: 9, 1966.
Dracontia cobanensis (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis cobanensis* Schltr. Repert. 11: 42, 1912.
Dracontia conochila (Luer) Luer, comb. nov.
Bas.: *Pleurothallis conochila* Luer, Lindleyana 11: 75, 1996.
Dracontia dracontea (Luer) Luer, comb. nov.
Bas.: *Pleurothallis dracontea* Luer, Phytologia 49: 204, 1981.
Dracontia fortunae (Luer & Dressler) Luer, comb. nov.
Bas.: *Pleurothallis fortunae* Luer & Dressler, Lindleyana 6: 97, 1991.
Dracontia grandis (Rolfe) Luer, comb. nov.
Bas.: *Pleurothallis grandis* Rolfe, Bull. Misc. Inform. Kew 1918: 234, 1918.
Dracontia ingramii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis ingramii* Luer, Lindleyana 11: 81, 1996.
Dracontia macrantha (L.O.Williams) Luer, comb. nov.
Bas.: *Pleurothallis macrantha* L.O.Williams, Ann. Missouri Bot. Gard. 28: 417, 1941.
Dracontia oblongifolia (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis oblongifolia* Lindl., Comp. Bot. Mag. 2: 355, 1836.
Dracontia pachyglossa (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis pachyglossa* Lindl., Edwards's Bot. Reg. 26: Misc. 68, 1840.
Dracontia papillifera (Rolfe) Luer, comb. nov.
Bas.: *Pleurothallis papillifera* Rolfe, Kew Bull. 1916: 77, 1916.
Dracontia perennis (Luer) Luer, comb. nov.
Bas.: *Pleurothallis perennis* Luer, Lindleyana 11: 86, 1996.
Dracontia powellii (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis powellii* Schltr., Repert. Beih. 17: 22, 1922.
Dracontia ramonensis (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis ramonensis* Schltr. Repert. Beih. 19: 193, 1923.
Dracontia thymochila (Luer) Luer, comb. nov.
Bas.: *Pleurothallis thymochila* Luer, Selbyana 3: 398, 1977.
Dracontia tintinnabula (Luer) Luer, comb. nov.
Bas.: *Pleurothallis tintinnabula* Luer, Lindleyana 11: 94, 1996.
Dracontia tuerckheimii (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis tuerckheimii* Schltr., Repert. 10: 292, 1912.

ELONGATIA
Elongatia (Luer) Luer, stat. nov.
Bas.: *Pleurothallis* subgen. *Elongatia* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 41, 1986.
Type: *Pleurothallis restrepioides* Lindl., Comp. Bot. Mag. 2: 356, 1836.
Elongatia atrohiatus (Dod) Luer, comb. nov.
Bas.: *Pleurothallis atrohiatus* Dod, Moscosoa 5: 226, 1989.
Elongatia carpinterae (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis carpinterae* Schltr., Repert. Beih. 19: 105, 1923.
Elongatia excelsa (Garay) Luer, comb. nov.
Bas.: *Pleurothallis excelsa* Garay, Caldasia 10: 232, 1968.
Elongatia guttata (Luer) Luer, comb. nov.
Bas.: *Pleurothallis guttata* Luer, Selbyana 3: 116, 1976.
Elongatia holtonii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis holtonii* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 52: 76, 1994.
Elongatia janetiae (Luer) Luer, comb. nov.
Bas.: *Pleurothallis janetiae* Luer, Selbyana 5: 169, 1979.
Elongatia macrophylla (Kunth) Luer, comb. nov.
Bas.: *Pleurothallis macrophylla* H.B.K, Nov. Gen. Sp. 1: 365, 1816.
Elongatia restrepioides (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis restrepioides* Lindl., Comp. Bot. Mag. 2: 356, 1836.
Elongatia sijmii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis sijmii* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 109, 2002.
Elongatia superbiens (Luer) Luer, comb. nov.
Bas. *Pleurothallis superbiens* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 52: 86, 1994.

EMPUSELLA
Empusella (Luer) Luer, stat. nov.
Bas.: *Pleurothallis* subgen. *Empusella* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 41, 1986.
Type: *Pleurothallis endotrachys* Rchb.f., Linnaea 41: 95, 1876.
Empusella endotrachys (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis endotrachys* Rchb.f., Linnaea 41: 95, 1876.

KRAENZLINELLA
Kraenzlinella Kuntz, Lex. Gen. Phan. 310, 1903.
Syn.: *Pleurothallis* subgen. *Kraenzlinella* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 44, 1986.
Type: *Otopetalum tungurahuae* Lehm. & Kraenzl., Bot. Jahrb. Syst. 26: 257, 1899, not Miguel 1856.
Kraenzlinella anfracta (Luer) Luer, comb. nov.
Bas.: *Pleurothallis anfracta* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 52: 92, 1994.
Kraenzlinella echinocarpa (C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis echinocarpa* C. Schweinf., Bot. Mus. Leafl. 10: 179, 1942.
Kraenzlinella erinacea (Rchb. f.) Luer, comb. nov.
Bas.: *Pleurothallis erinacea* Rchb. f., Bonplandia 3: 72, 1855.
Kraenzlinella gigantea (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis gigantea* Lindl., Folia Orchid. Pleuro. 28, 1859.
Kraenzlinella hintonii (L.O.Williams) Luer, comb. nov.
Bas.: *Pleurothallis hintonii* L.O.Williams, Amer. Orchid Soc. Bull. 9: 69, 1940.
Kraenzlinella lappago (Luer) Luer, comb. nov.
Bas.: *Pleurothallis lappago* Luer, Phytologia 46: 368, 1980.
Kraenzlinella otopetalum (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis otopetalum* Schltr. Repert. 10: 292, 1912.
Kraenzlinella phrynoglossa (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis phrynoglossa* Luer & Hirtz, Monogr. Syst. Bot. Missouri Bot. Gard. 65: 116, 1998.
Kraenzlinella shuarii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis shuarii* Luer, Selbyana 7: 122, 1982.
Kraenzlinella sigmoidea (Ames & C.Schweinf.) Luer, comb. nov.
Bas.: *Pleurothallis sigmoidea* Ames & Schweinf., Sched. Orch. 10: 36, 1930.
Kraenzlinella smaragdina (Luer) Luer, comb. nov.
Bas.: *Pleurothallis smaragdina* Luer, Selbyana 1: 290, 1975.

LINDLEYALIS
Lindleyalis Luer, stat. et nom. nov.
Type: *Pleurothallis hemirhoda* Lindl., in Paxton's Fl. Gard. 3: 133, 1852.
Plantae grandes; spatha magna; petala infra medium longi-attenuata; labellum elongatum supra basim lobatum.
Syn.: *Pleurothallis* sect. *Restrepioideae* Lindl.
Lindleyalis fustifera (Luer) Luer, comb. nov.
Bas. *Pleurothallis fustifera* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 173, 1999.
Lindleyalis glossopogon (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis glossopogon* Rchb.f., Bonplandia 3: 71, 1855.
Lindleyalis hemirhoda (Lindl.) Luer, comb. nov.
Bas. *Pleurothallis hemirhoda* Lindl. in Paxton's Fl. Gard. 3: 133, 1852.
Lindleyalis medinae (Luer & Portilla) Luer, comb. nov.
Bas. *Pleurothallis medinae* Luer & Portilla, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 110, 2000.
Lindleyalis sirene (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis sirene* Rchb.f., Bonplandia 3: 71, 1855.
Lindleyalis talpinarioides (Garay & Dunst.) Luer, comb. nov.
Bas.: *Pleurothallis talpinarioides* Garay & Dunst., Venez. Orch. Ill. 6: 368, 1976.
Lindleyalis tentaculata (Poepp. & Endl.) Luer, comb. nov.
Bas.: *Restrepia tentaculata* Poepp. & Endl., Nov. Gen. Sp. 1: 34, 1836.
Syn.: *Pleurothallis tentaculata* (Poepp. & Endl.) Lindl.

MADISONIA
Madisonia Luer, gen. nov.
Type: *Pleurothallis kerrii* Braga, Bradea 3: 172, 1981.
Planta longirepens; bracteis pubescentibus; folia sessiles; ramicaules abbreviati; flos uniflorus; sepala laterales connata cum mento; labellum trilobatum unguo saccatum.
Madisonia kerrii (Braga) Luer, comb. nov.
Bas.: *Pleurothallis kerrii* Braga, Bradea 3: 172, 1981.

MIXIS
Mixis Luer, gen. nov.
Type: *Pleurothallis incongrua* Luer, Orquideología 21: 127, 1999.
Planta caespitosa; folia ovata sessiles; racemi pauces pluriflori; sepala laterales connata; petala integres; labellum saccatum retusum; columna elongata longidentata.
Mixis incongrua (Luer) Luer, comb. nov.
Bas.: *Pleurothallis incongrua* Luer, Orquideología 21: 127, 1999.

PROCTORIA
Proctoria Luer, gen. nov.
Type: *Pleurothallis caymanensis* Adams, Orquideología 6: 146, 1971.
Planta perparva caespitosa; folia sessiles; ramicaules abbreviati; sepala laterales connata; labellum supra basim lobata ad basim lobulata; columna alata; pollinia duo.
Proctoria caymanensis (Adams) Luer, comb. nov.
Bas: *Pleurothallis caymanensis* Adams, Orquideología 6: 146, 1971.

RUBELLIA
Rubellia Luer, stat. nov.
Bas: *Pleurothallis* subgen. *Rubellia* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 73, 1986.
Type: *Pleurothallis rubella* Luer, Selbyana 3: 378, 1977.
Rubellia rubella (Luer) Luer, comb. nov.
Bas: *Pleurothallis rubella* Luer, Selbyana 3: 378, 1977.

SPECKLINIA
Specklinia *Specklinia* Lindl., Gen. Sp. Orch. Pl. 8, 1830.
Type: *Epidendrum lanceola* Sw. = [*Specklinia lanceola* (Sw.) Spreng.].
Specklinia abbreviata (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis abbreviata* Schltr., Repert. 10: 352, 1912.
Specklinia acuminata (Kunth) Luer, comb. nov.
Bas.: *Dendrobium acuminatum* Kunth, Nov. Gen. Sp. 1: 357, 1816.
Specklinia acutidentata (Cogn.) Luer, comb. nov.
Bas.: *Pleurothallis acutidentata* Cogn., Bull. Soc. Bot. Belg. 43: 314, 1907.
Specklinia adenochila (Löfgr.) Luer, comb. nov.
Bas.: *Pleurothallis adenochila* Löfgr., Arch. Jard. Bot. Rio de Janeiro 2: 55, 1918.
Specklinia adiri (Brade) Luer, comb. nov.
Bas.: *Pleurothallis adiri* Brade, Orquidea (Niteroi) 9: 21, 1946.
Specklinia adrianae (Luer & Sijm) Luer, comb. nov.
Bas.: *Pleurothallis adrianae* Luer & Sijm, Monogr. Syst. Bot. Missouri Bot. Gard. 88: 106, 2002.
Specklinia alata (A.Rich. & Galeotti) Luer, comb. nov.
Bas.: *Pleurothallis alata* A.Rich. & Galeotti, Ann. Sci. Nat. ser. 3, 3: 17, 1845.
Specklinia alligatorifera (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis alligatorifera* Rchb.f., Hamb. Gartenzeitung 21: 299, 1865.
Specklinia alta (Luer) Luer, comb. nov.
Bas.: *Pleurothallis alta* Luer, Lindleyana 11: 43, 1996.
Specklinia amaralii (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis amaralii* Pabst, Bradea 2(14): 84, 1976.
Specklinia amparoana (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis amparoana* Schltr., Repert. Beih. 19: 23, 1923.
Specklinia anderssonii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis anderssonii* Luer, Lindleyana 11: 145, 1996.
Specklinia angulosa (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis angulosa* Luer & Hirtz, Lindleyana 11: 146, 1996.
Specklinia angustilabia (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis angustilabia* Schltr., Repert. Beih. 9: 71, 1921.
Specklinia arcuata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis arcuata* Lindl., Folia Orch. Pleur. 34, 1859.
Specklinia ariasii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis ariasii* Luer & Hirtz, Lindleyana 12: 42, 1997.
Specklinia aristulata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis aristulata* Lindl., Folia Orch. Pleuro. 41, 1859.

Specklinia aryter (Luer) Luer, comb. nov.
Bas.: *Pleurothallis aryter* Luer, Selbyana 3: 54, 1976.
Specklinia asperilinguis (Rchb.f. & Warsc.) Luer, comb. nov.
Bas.: *Pleurothallis asperilinguis* Rchb.f. & Warsc., Bonplandia 2: 114, 1854.
Specklinia attenuata (Rolfe) Luer, comb. nov.
Bas.: *Pleurothallis attenuata* Rolfe, Bull. Misc. Inform. 364, 1909.
Specklinia auriculata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis auriculata* Lindl., Companion Bot. Mag. 2: 356, 1836.
Specklinia avenacea (Ames) Luer, comb. nov.
Bas.: *Pleurothallis avenacea* Ames, Orchidaceae 2: 266, 1908.
Specklinia aveniformis (Hoehne) Luer, comb. nov.
2(5): 106, 1950.
Specklinia bacillaris (Pabst) Luer, comb. nov.
Bas.: *Pleurothallis bacillaris* Pabst, Arch. Jard. Bot. Rio de Janeiro 14: 7, 1956.
Specklinia barbae (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis barbae* Schltr., Repert. Beih. 19: 104, 1923.
Specklinia barbacenensis (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis barbacenensis* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 11, 1882.
Specklinia barbulata (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis barbulata* Lindl., Folia Orch. Pleuro. 40, 1859.
Specklinia bertoniensis (Hauman) Luer, comb. nov.
Bas.: *Pleurothallis bertoniensis* Hauman, An. Soc. Ci. Argent. 90: 144, 1920.
Specklinia bipapularis (Dod) Luer, comb. nov.
Bas.: *Pleurothallis bipapularis* Dod, Moscosoa 1: 52, 1976, as *bipapulare*.
Specklinia blepharoglossa (Luer) Luer, comb. nov.
Bas.: *Pleurothallis blepharoglossa* Luer, Lindleyana 14: 111, 1999.
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Specklinia succuba (Luer) Luer, comb. nov.
Bas.: *Pleurothallis succuba* Luer, Rev. Soc. Bol. Bot. 4: 19, 2003.
Specklinia sulphurea (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis sulphurea* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 15, 1882.
Specklinia susanensis (Hoehne) Luer, comb. nov.
Bas.: *Pleurothallis susanensis* Hoehne, Arquiv. Bot. Est. S. Paulo 1: 11, 1938.
Specklinia syringodes (Luer) Luer, comb. nov.
Bas.: *Pleurothallis syringodes* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 76: 176, 1999.
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Bas.: *Lepanthes tabacina* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 47, 1882.
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Bas.: *Pleurothallis tarantula* Luer & Hirtz, Lindleyana 11: 186, 1996.
Specklinia tenera (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes tenera* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 51, 1882.
Specklinia thomasiae (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis thomasiae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 79: 84, 2000, as *thomasii*.
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Bas.: *Pleurothallis tortilis* Luer & R.Escobar, Orquideología 14: 180, 1981.
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Bas.: *Pleurothallis transparens* Schltr., Anex. Mem. Inst. Butantan 1(4): 44, 1922.
Specklinia trichostomaa (Luer) Luer, comb. nov.
Bas.: *Pleurothallis trichostoma* Luer, Selbyana 5: 185, 1979.
Specklinia trichyphis (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis trichyphis* Rchb.f., Flora 48: 276, 1865.
Specklinia tricolor (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes tricolor* Barb.Rodr., Gen. Sp. Orch. Nov. 2: 52, 1882.
Specklinia trifida (Lindl.) Luer, comb. nov.
Bas.: *Pleurothallis trifida* Lindl., Edwards's Bot. Reg. 27: Misc. 82, 1842.
Specklinia trigridens (Löfgr.) Luer, comb. nov.
Bas.: *Pleurothallis tigridens* Löfgr., Arch. Jard. Bot. Rio de Janeiro 2: 56, 1918.
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Bas.: *Pleurothallis trimeropetala* Pabst, Arquiv. Jard. Bot. Rio de Janeiro 14: 20, 1956.
Specklinia tripterantha (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis tripterantha*, Rchb.f., Bonplandia 2: 24, 1854.
Specklinia trulla (Rchb.f & Warsz.) Luer, comb. nov.
Bas.: *Pleurothallis trulla* Rchb.f. & Warsz., Bonplandia 2: 114, 1854.
Specklinia trullifera (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis trullifera* Luer & Hirtz, Lindleyana 11: 190, 1996.
Specklinia tsubotae (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Pleurothallis tsubotae* Luer & R.Escobar, Orquideología 20: 88, 1996.
Specklinia turrialbae (Luer) Luer, comb. nov.
Bas.: *Pleurothallis turrialbae* Luer, Lindleyana 6: 105, 1991.
Specklinia unduavica (Luer & V) Luer, comb. nov.
Bas.: *Pleurothallis unduavica* Luer & Vásquez, Phytologia 46: 372, 1980.
Specklinia ursula (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis ursula* Luer & Hirtz, Lindleyana 11: 193, 1996.
Specklinia vaginata (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis vaginata* Schltr., Repert. Beih. 19: 197, 1923.
Specklinia vasquezii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis vasquezii* Luer, Phytologia 49: 220, 1981.
Specklinia verboonenii (Luer & Toscano) Luer, comb. nov.
Bas.: *Pleurothallis verboonenii* Luer & Toscano, Selbyana 23: 194, 2002.
Specklinia variegata (Barb.Rodr.) Luer, comb. nov.
Bas.: *Pleurothallis variegata* Barb.Rodr., Gen. Sp. Orch. Nov. 1: 10, 1877.
Specklinia vestita (Kraenzl.) Luer, comb. nov.
Bas.: *Pleurothallis vestita* Kraenzl., Repert. 17: 392, 1921.
Specklinia villosa (Knowles & West.) Luer, comb. nov.
Bas.: *Pleurothallis villosa* Knowles & Westc., Floral Cabinet 2: 78, 1838.
Specklinia villosilabia (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis villosilabia* Luer & Hirtz, Selbyana 23: 41, 2002.
Specklinia violaceomaculata (Höhne) Luer, comb. nov.
Bas.: *Pleurothallis violaceomaculata* Hoehne, Arq. Bot. Est. S. Paulo 2(6): 123, 1952.
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Bas.: *Pleurothallis vitorinoi* Luer & Toscano, Selbyana 23: 195, 2002.

Specklinia wacketii (Handro & Pabst) Luer, comb. nov.
Bas.: *Pleurothallis wacketii* Handro & Pabst, Bradea 1(7): 46, 1971.
Specklinia welteri (Pabst) Luer, comb. nov.
Bas. *Pleurothallis welteri* Pabst, An. XIV Congr. Soc. Bot. Brasil 15, 1964.
Specklinia wrightii (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis wrightii* Rchb.f., Flora 48: 276, 1865.
Specklinia xerophila (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis xerophila* Schltr., Beih. Bot. Centralbl. 34(2): 398, 1918.
Specklinia ximenae (Luer) Luer, comb. nov.
Bas.: *Pleurothallis ximenae* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 238, 2004.
Specklinia yauaperyensis (Barb.Rodr.) Luer, comb. nov.
Bas.: *Lepanthes yauaperyensis* Barb.Rodr., Vellosia, ed. 2., 1: 117, 1891.
Specklinia ypirangae (Kraenzl.) Luer, comb. nov.
Bas.: *Pleurothallis ypirangae* Kraenzl., Svensk. Vet. Acad. Handl. 46(10): 50, 1911.
Specklinia yupanki (Luer & R.Vásquez) Luer, comb. nov.
Bas.: *Pleurothallis yupanki* Luer & R.Vásquez, Phytologia 55: 203, 1984.
Specklinia zephyrina (Rchb.f.) Luer, comb. nov.
Bas.: *Pleurothallis zephyrina* Rchb.f., Bonplandia 3: 71, 1855.

TALPINARIA
Talpinaria Karst., Fl. Columb. 1: 153, 1861.
Type: *Talpinaria bivalvis* Karst., Fl. Columb. 1: 153, 1861.
Syn.: *Pleurothallis* subgenus *Talpinaria* (Karst.) Luer.
Plantae mediocres; ramicaules bene effecti; uniflori cum spatha magna; pedunculi abbreviati; sepala lateralia connata; labellum lobatum.
Talpinaria hitchcockii (Ames) Luer, comb. nov.
Bas.: *Pleurothallis hitchcockii* Ames, Orchidaceae 7: 117, 1922.
Talpinaria punctulata (Rolfe) Luer, comb. nov.
Bas.: *Pleurothallis punctulata* Rolfe, Gard. Chron. 2: 756, 1888.
Talpinaria sandemanii (Luer) Luer, comb. nov.
Bas.: *Pleurothallis sandemanii* Luer, Orquideología 22: 222, 1996.

TRIBULAGO
Tribulago Luer, stat. et nom. nov.
Type: *Epidendrum tribuloides* Sw., Prodr. 123, 1788 = *Pleurothallis tribuloides* (Sw.) Lindl.
Planta parva caespitosa; ramicaules abbreviati; racemus abbreviatus; ovarium spiculatum; sepala ad apicem conniventes intus verrucosa; columna elongata; pollinia duo.
Syn.: *Pleurothallis* subgen. *Specklinia* sect. *Tribuloides* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 91, 1986.
Tribulago tribuloides (Sw.) Luer, comb. nov.
Bas.: *Epidendrum tribuloides* Sw., Prodr. 123, 1788.

UNCIFERIA
Unciferia (Luer) Luer, stat. nov.
Type: *Pleurothallis segoviensis* Rchb.f., Bonplandia 3: 223, 1855.
Bas.: *Pleurothallis* subgen. *Specklinia* sect. *Unciferia* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 94, 1986.
Unciferia amaliae (Luer & R.Escobar) Luer, comb. nov.
Bas: *Pleurothallis amaliae* Luer & R.Escobar, Orquideología 14: 124, 1981.
Unciferia ancistra (Luer & Hirtz) Luer, comb. nov.
Bas.: *Pleurothallis ancistra* Luer & Hirtz, Lindleyana 11: 144, 1996.
Unciferia bifalcis (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis bifalcis* Schltr., Beih. Bot. Centralbl. 36: 395, 1918.
Unciferia canae (Ames) Luer, comb. nov.
Bas.: *Pleurothallis canae* Ames, Sched. Orch. 2: 18, 1923.
Unciferia kareniae (Luer) Luer, comb. nov.
Bas.: *Pleurothallis kareniae* Luer, Lindleyana 11: 83, 1996.
Unciferia pilostoma (Luer) Luer, comb. nov.
Bas.: *Pleurothallis pilostoma* Luer, Lindleyana 11: 89, 1996.
Unciferia pompalis (Ames) Luer, comb. nov.
Bas.: *Pleurothallis pompalis* Ames, Sched. Orch. 7: 23, 1924
Unciferia psilantha (Luer) Luer, comb. nov.
Bas.: *Pleurothallis psilantha* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 72: 95, 1998.
Unciferia segoviensis (Rchb.f.) Luer, comb. nov.
Bas.:*Pleurothallis segoviensis* Rchb.f., Bonplandia 3: 223, 1855.
Unciferia wagneri (Schltr.) Luer, comb. nov.
Bas.: *Pleurothallis wagneri* Schltr., Repert. 17: 141, 1921.

UNGUELLA
Unguella (Luer) Luer, stat. nov.
Bas.: *Pleurothallis* subgen. *Unguella* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 95: 80, 2004.
Type: *Pleurothallis lepidota* L.O.Williams, Ann. Missouri Bot. Gard. 27: 279, 1940.
Unguella cachensis (Ames), comb. nov.
Bas.: *Pleurothallis cachensis* Ames, Sched. Orchid. 4: 17, 1923.
Unguella lepidota (L.O.Williams) Luer, comb. nov.
Bas.: *Pleurothallis lepidota* L.O.Williams, Ann. Missouri Bot. Gard. 27: 279, 1940.

XENOSIA
Xenosia Luer, stat et nov. nov.
Type: *Pleurothallis xenion* Luer & R.Escobar, Orquideología 16: 38, 1983.
Herbae parvae scandentes; ramicaules abbreviati; labellum ad centrum excavatum, basi ad pedem columnae affixum.
Syn.: *Pleurothallis* subgen. *Xenion* Luer, Monogr. Syst. Bot. Missouri Bot. Gard. 20: 96, 1986.
Xenosia spiralis (Ruiz & Pav.) Luer, comb. nov.
Bas.: *Humboldtia spiralis* Ruiz & Pav., Syst. Veg. Pl. Peruv. 1: 237, 1798.
Xenosia xenion (Luer & R.Escobar) Luer, comb. nov.
Bas.: *Pleurothallis xenion* Luer & R.Escobar, Orquideología 16: 38, 1983.

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